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Project Report

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ANALYSIS OF ISSUES RELATING TO IMPLEMENTING A MEDICARE PHYSICIAN FEE SCHEDULE

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The statements and opinions expressed are the author´s and are not necessarily those of the OTA, Congress, or The Urban Institute.

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INTRODUCTION

Medicare's Supplementary Medical Insurance Program (Part-B) provides elderly and disabled enrollees with insurance against the costs of physicians' care and other medical services. Over the past decade, federal payments for Part-B covered services grew at an extraordinarily rapid rate. By fiscal year 1985, Medicare Part B had become the third largest Federal domestic spending program trailing only Social Security and Medicare's hospital insurance program in total budget outlays.* Not only is the Part-B program costly, but some observers allege that its customary, prevailing, and reasonable charge (CPR) system of reimbursing providers is inequitable. One specific allegation is that relative payments for certain types of procedures (e.g. visits) are not commensurate with the relative value of the resources used to produce them. Another is that geographic and specialty differences in the program's payments for a given service are inherently unfair. Congress is evaluating alternative Medicare physician reimbursement systems that promise to contain cost increases and address equity issues while maintaining physicians' willingness to accept assignment of benefits: that is, accept the program-determined reasonable fee as payment-in-full for covered services. To facilitate this process, it charged the Office of Technology Assessment with the task of studying alternative physician payment methodologies including replacement of the CPR system with national or regional fee schedules.

This report assists that effort by providing background information on topics relevant to the design and implementation of a Medicare physician fee schedule. Much of that information pertains to financial dimensions of the Part B program: providers' charges and revenues, program and beneficiary payments for covered services, and the relationship of these variables to physicians assignment patterns. In contrast, it does not address such important issues as quality of care and beneficiaries' access to covered services. Informative as such an inquiry might be, it is beyond the scope of the present study.

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*Special Analysis, Budget of the United States Government FY 1985 (table A16).

Overview

The first of the five chapters in this report is an introduction including a discussion of the primary data base. Second is a report on profiles of Medicare allowed charges by type of service and what they imply for achieving cost-containment and equity-of-payment goals under a Medicare fee schedule. Third is a discussion of the extent to which a statewide average charge-based fee schedule would represent a radical departure from Medicare's present CPR reimbursement system. Central to the chapter is an analysis of the variation in allowed charges for important Medicare services. The fourth chapter discusses relationships between physicians' Medicare assignment patterns and particular attributes of their Medicare practices: its size, the relative magnitude of average allowed and billed charges, and the contribution of balance-billing (the difference between the physician's bill and the program's allowed fee) to providers' Medicare revenues. Finally, the fifth chapter contains analyses of the effects of simulated implementation of prototype Medicare fee schedules.

Data Base

The primary study data are charges, service frequencies, and other information on all Part-B covered services provided by South Carolina physicians in 1983. The primary file contains information on each procedure performed by each provider who submitted an unmodified Part-B claim in the state that year. Excluded are data on services with modified procedure codes, as well as data for non-physician providers and anesthesiologists (because of complexities in their billing and reimbursement processes).* Despite those exclusions, the physician-specific primary data file--hereafter called the South Carolina analysis file for 1983--accounts for 74 percent of all Part-B allowed charges and 72 percent of all services in the state that year. Supplementing that file are statistics and other data from several sources--principally reports derived from the Health Care Financing Administration´s (HCFA´s) nationwide annual five percent samples of Part-B claims.

The study´s findings should be useful for policy makers at the national level despite the fact that they are derived from analysis of a single Medicare program in a Southeastern state. The reason is that the Part B program in South Carolina is typical of many others along such important dimensions as: claim assignment rates, claim and charge reduction rates,** distributions of physicians´ Medicare revenue by source, and the mix of specialists serving Medicare beneficiaries. For example, a recent Congressional study reported that claim assignment and reduction rates in South Carolina (56.5 percent and 86.4 percent respectively) were very close to national averages (52.3 percent and 82.8 percent) during 1981 despite the presence of considerable interregional variation in those statistics.* Unpublished HCFA data demonstrate further the similarity between the Part B system in South Carolina and nationwide.** In particular, the data permit computation of expected Medicare practice revenues by source of payment. In 1982 in South Carolina, physicians received approximately 62 percent of their Medicare practice revenues in the form of program payments--in contrast, physicians nationwide received 64 percent from that source. Beneficiary deductibles and coinsurance payments accounted for 25 percent of Medicare practice revenues in South Carolina, and an estimated 23 percent nationwide. And bill balances (the difference between program reasonable fees and billed charges for nonassigned services) contributed 14 percent to South Carolina physicians' Medicare revenues, and 13 percent to those of physicians across the country. Finally data reported in chapter 2 clearly demonstrate that the percent distribution of Medicare allowed charges by specialty of provider in South Carolina is nearly identical to the corresponding distribution of Part B program payments by specialty nationwide.

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*Modifier codes indicate that special circumstances characterized a service and its associated fees. Anesthesiologists are paid on the basis of time units--not occasions of service. Also, in South Carolina and elsewhere, they submit bills keyed to surgical rather than anesthesiology procedure codes complicating the study task of creating statewide average charges for surgical procedures.

**Reduction rate is the percent of claims (or charges) for which the program-determined reasonable fee is less than the physician´s billed charge.

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*U.S. Senate (1983) pp. 33-34.

**Tables BSPR-11A "Charges and Reimbursement for Aged Beneficiaries by Specialty Code Distributed by Type of Assignment" for expense year 1982.

II. PROFILES OF PART-B ALLOWED CHARGES: IMPLICATIONS FOR FEE SCHEDULES, COST CONTAINMENT, AND EQUITY IN PAYMENTS

Under CPR reimbursement rules, the Medicare Part-B program pays 80 percent of the reasonable (alternatively called the allowed or approved) charge per service--less any outstanding deductible payment owed by the beneficiary.* The reasonable or allowed charge is the lesser of the physician's bill, his or her customary fee (that provider's median bill for the procedure in the preceding year), and the regionally prevailing charge (the 75th percentile of local customary charges, subject to an upper limit relative to calendar year 1971 charge levels.**). Customary and prevailing fees are functions of physician billings. Hence inflation, inequities in relative fee levels, or other undesirable attributes of historical billing patterns will directly affect Part-B allowed charges and derived program costs.

For a Medicare fee schedule to constrain total program costs, it must restrain the level and growth of payments for services which account for a substantial fraction of those costs. Those services need not be the most expensive per unit: even relatively inexpensive services can contribute substantially to total program outlays because total costs are the product of average unit price and volume. Hence, policy makers can realize cost containment goals by using fee schedules to constrain or revalue allowed charge levels for services in each of two classes: very expensive procedures and less expensive, high volume services. However, if those include procedures which some contend to be undervalued by Medicare, it may prove difficult to set fee levels which simultaneously address those inequities in reimbursement levels and the goal of cost containment.

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*The beneficiary is liable for the remaining 20 percent of allowed charges (coinsurance) and for an annual $75 deductible.

**The Deficit Reduction Act of 1984 freezes prevailing and customary fees for 15 months beginning July 1984. Prior to that, customary and prevailing charges were updated annually, with the rate of increase in the prevailing fee limited by the Medicare Economic Index. [See Paringer, June 1981]

The need to revise and periodically update a fee schedule affords policy makers another means for controlling Medicare costs by controlling rates of growth in prices. Cost containment objectives will be served to the extent that policy makers can restrain prices that would have grown rapidly under traditional CPR reimbursement—assuming no offsetting increases in service volume. In order to design a Medicare fee schedule, policy makers require answers to a number of questions, including:

> for which procedures is it most important that a fee schedule constrain the level or rate of growth in prices? What implications does that carry for achieving equity in reimbursement levels across procedures?
>
> for which procedures is the cost containment potential of fee schedule most promising?

The data in the following tables provide some of the requisite information for answering them.

Distributions of Allowed Charges and Service Frequency: By Type of Service

Table 2.1 contains distributions of Part-B services and allowed charges in South Carolina for services in five categories: visits, other medical services, surgery, radiology, and pathology. Nearly 75 percent of allowed charges and 60 percent of services are for claims in two categories: visits and surgery. Visits are especially noteworthy as they account for large fractions of charges and services—33 percent and 57 percent, respectively. In contrast, surgical procedures account for 42 percent of allowed charges but a much smaller fraction of service volume: slightly less than 3 percent.

Table 2.1

Medicare Part B Allowed Charges and Services by Type of Procedure
(South Carolina Analysis File: 1983)

	All Types	All Visits	(Office Visits)	(Hospital Visits)	Other Medicine	Surgery	Radiology*	Pathology
Total Allowed ($1000)	$75,192	24,653	(10,789)	(13,330)	7,789	31,903	8,369	2,478
Percent	100%	32.7	(14.3)	(17.7)	10.4	42.4	11.1	3.3
Total Services (1000)	2,089	1,193	(596)	(588)	110	58	354	374
Percent	100%	57.0	(28.5)	(28.1)	5.3	2.8	16.9	17.9

*Professional component only.

A review of nationwide data on Part-B services shows that the patterns in South Carolina are fairly typical. Unpublished HCFA data from a five percent sample of all Part-B claims in 1983 reveal that medical care and surgery account for 64 percent of total allowed charges, and 49 percent of services.* Surgery alone accounts for slightly over 30 percent of allowed charges, nationwide, but slightly more than 4 percent of all services.

The contribution of visits--in office, hospital, and other settings--to total Part-B payments is underscored by examining data on the procedures accounting for most Part-B allowed charges in South Carolina (table 2.2). Taken together the ten most important procedures account for nearly 43 percent of allowed charges and 54 percent of services statewide. It is noteworthy that five of the top ten procedures are visits and account for almost 29 percent of the total allowed charges (and 48 percent of all services) in the state. The 7.2 percent of aggregate allowed charges associated with cataract lens implantation is also striking--and consistent with a nationwide trend that some observers find alarming.** Thus, a rather large proportion of total Medicare program costs are associated with only a handfull of procedure types--especially office and hospital visits and lens implantation. Hence, the success or failure of a fee schedule as a cost containment device may hinge on policy makers´ ability to use the schedule to restrain and control prices for a relatively small number of important procedures.

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*SRQ-6 tables based on HCFA/BSR system data. Those tables include data on non-physician suppliers of Part-B covered services.

**For example, see the report on proceedings of the House Select Subcommittee on Aging in The Washington Post, July 19, 1985, p. 1.

Table 2.2

Procedures Accounting for Greatest Share of Part-B Allowed Charges
- Percent of Charges and Services in the State -
(South Carolina Analysis File: 1983)

Code	Description	Allowed Charges	Services
90250	Follow-up Hospital Visit	11.9%	21.0%
90050	Limited Office Visit	9.6	21.5
66980	Cataract Lens Prothesis	7.2	0.2
90220	Initial Hospital Visit	4.6	2.4
52601	Transurethral Resection of Prostate	2.4	0.1
90620	Comprehensive Consultation	1.9	0.9
93000	EKG	1.6	1.9
90060	Intermediate Office Visit	1.4	2.2
71020	2-View Chest X-ray	1.3	2.8
90080	Comprehensive Office Visit	1.0	0.7
	Total: These ten	42.9%	53.7%

Equity in Payment

Implementation of a Medicare fee schedule affords policy makers an opportunity to meet goals other than cost containment. For example, it might be useful as tool for rectifying alleged inequities in relative payments for visits and certain related services.[*] According to some observers, procedures like visits and consultations are undervalued relative to other services. A budget-neutral Medicare fee schedule which revalues relative payments for different classes of services might eliminate some or all of those alleged inequities.[**] However, such a wholesale revaluation of relative prices would reduce allowed charges for some procedures while increasing them for others: an action that some physicians might oppose. Alternatively, the budget neutrality condition could be relaxed, and the revaluation accomplished by the simple expedient of increasing allowed charges for targeted procedures: but at the price of exacerbating the problem of containing growth in total program costs. For example, consider the consequences of doubling the average allowed charge for office visits (one approach for redressing the degree of undervaluation estimated by Hsiao and Stason). Doing so would increase total allowed charges in South Carolina by approximately 14 percent assuming service volume remains unchanged. Put differently, average allowed charges for all other types of care would have to be reduced by one-sixth to offset the doubling of allowed charges for office visits.* Hence policy makers may be forced to trade off one set of objectives, (like cost containment) against another (like equity in relative payments) when designing and implementing a Medicare fee schedule.

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[*] See Hsiao and Stason 1979, and Kirchner 1984. The issue is often posed as relative underpayment for "cognitive" services (history taking, physical exams, patient counseling, and consultations) in contrast to other procedures--of which surgery is a prime example.

[**] Budget neutrality would mean raising some fees and lowering others while leaving total program payments unchanged.

Growth in Price and in Total Allowed Charges

Research by Juba and Sulvetta (table 2.3) suggests that Part-B costs for different types of care grew at different rates over much of the past decade. Between 1975 and 1983, nationwide aggregate allowed charges for medical care increased at an annual continuously compounded rate of 15 percent. In contrast, total charges for all Part-B covered services increased at an annual rate of 17 percent with aggregated charges for consultations growing most rapidly (20 percent per year). Therefore, a fee schedule will be an especially useful tool for cost containment if policy makers can employ it to restrain costs where they are growing most rapidly.

The success of that effort will depend upon the relative importance of price inflation as a determinant of the total rate of growth in costs. In table 2.4 are data on the relative contributions of real (inflation-adjusted) price increases and three other determinants of annual growth in total Part-B allowed charges including: growth in Medicare enrollment; growth in services per enrollee; and general inflation. Those data show that 13 percent of the growth in total allowed charges between 1975 and 1983 is attributable to concomitant growth in enrollment, 39 percent to growth in volume per enrollee, 9 percent to real price increase, and 39 percent to general inflation.

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*Office visits are approximately 14 percent of allowed charges—other procedures the residual 86 percent. Doubling allowed fees for the former requires a reduction of approximately 1/6 in other allowed fee as (1/6) * (86%) = 14%.

Table 2.3

Annual Rates of Continuously Compounded Growth in Medicare Part B Allowed Charges (U.S. 1975-1983)

	All Types	Medical Care	Surgery	Clinical Lab	Diagnostic X-ray	Consultations
annual growth rate	17%	15%	18%	18%	19%	20%

Table 2.4

A Decomposition of Annual Growth in Total Medicare Part-B Allowed Charges (U.S. 1975-1983)

	All Types	Medical Care	Surgery	Clinical Lab	Diagnostic X-ray	Consultations
Source of Growth:						
total allowed charges	100%	100%	100%	100%	100%	100%
enrollment	13	15	13	12	12	11
services per enrollee	39	22	39	42	44	44
deflated allowed charges per service	9	18	9	8	9	11
GNP deflator	39	44	38	37	35	33

Source: Juba and Sulvetta, 1985.

However, the relative importance of each factor is not uniform across the service categories. For instance, the contribution of real price increases to growth in aggregate allowed charges for medical care (18 percent) substantially exceeded its contribution (8 to 11 percent) to growth in aggregate charges for the other types of service. Similarly, increases in services per enrollee account for 22 percent of the rate of growth in total allowed charges for medical care. In contrast volume increases account for a much greater fraction (39 to 44 percent) of the rates of growth in total allowed charges for other services.

These data are retrospective, and may not be indicative of the future course of Part-B allowed charges and associated program payments. However, they illustrate the potential and limitations of a Medicare fee schedule as a tool for cost containment. A fee schedule controls costs primarily by controlling price increases. Therefore, it might be most effective whenever real price inflation is a relatively important determining factor; e.g. in the case of the increases in medical care costs between 1975 and 1983. But the data show that other factors, primarily volume per program enrollee, may be responsible for much of the increase in aggregate program costs for some services. Price controls (through a fee schedule) might be less effective as a tool for restraining growth in those instances.

Distribution of Allowed Charges Across Specialties

The foregoing analyses focused on the questions: what does the Part-B program purchase and what is the potential of a fee schedule for containing the associated program costs? It is also useful to address the question: from whom does the program purchase care and which providers are most likely to be affected by any fee-schedule-induced charges in relative or absolute prices? An examination of statewide total allowed charges distributed across specialties in South Carolina (table 2.5) shows that 73 percent are for

Table 2.5

Distribution of Allowed Charges Across Specialties
– by Type of Service –
(South Carolina Analysis File: 1983)

	All Specialties	General Practice	Family Practice	Internal Medicine	General Surgery	Orthopedic Surgery	Ophthal-mology	Radio-logy	Other
All Types	100%	8.7	6.6	18.1	13.2	5.7	9.5	11.2	26.9
Office Visits	100%	24.2	15.4	31.6	5.1	3.6	0.1	0.4	19.6
Hospital Visits	100%	18.1	14.8	41.3	4.7	0.8	—	0.4	19.9
Other Medicine	100%	5.6	6.2	37.7	4.1	0.7	0.3	1.5	43.9
Surgery	100%	0.9	0.6	2.6	26.3	11.7	22.3	0.1	35.5
Radiology*	100%	—	0.2	0.1	—	—	—	97.7	1.9
Pathology	100%	24.5	19.2	32.7	1.3	—	—	—	22.3

*Professional component only.

services provided by seven specialties.* The three primary care specialties (general and family practice, and internal medicine) accounted for 33 percent; three surgical specialties (general surgery, ophthalmology, and orthopedic surgery) accounted for 28 percent; and radiology accounted for 11 percent. The data also show that the primary care specialties account for 71 percent of aggregate allowed charges for office visits, and for 74 percent of charges for hospital visits in the state. And the three surgical specialties account for over 60 percent of allowed charges for surgical procedures. Complementary data (table 2.6) on the composition of different specialists´ practices are consistent with that pattern. More than two thirds of the allowed charges for primary care physicians´ services in South Carolina are for office and hospital visits. And more than 80 percent of allowed charges for surgical specialists´ (and radiologists´) services are for surgical (and radiology) procedures. Hence, controlling the level or growth of aggregate Part-B allowed charges and program payments translates into controlling charges for visits and surgical services provided by physicians in a few important specialties.

Summary and Discussion

A physician´s fee schedule provides policy makers with leverage on short-run and long-run payments for Part-B services--leverage which can be exploited to achieve a number of policy goals ranging from restraining program expenditures to establishing new patterns of relative payments for sets of services.

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*HCFA data based on the five percent sample bill summary record system showed that approximately the same distribution holds nationwide. In 1982, six specialties accounted for almost 58 percent of program payments for physicians´ services received by elderly Part-B enrollees. These specialties, and the fractions of total program payments they accounted for are: internal medicine (19%), ophthalmology (10%), general surgery (10%), radiology (8%), general practice (6%) and orthopedic surgery (6%).

Table 2.6

Distribution of Allowed Charges Across Service Categories
- by Providers' Specialty -
(South Carolina Analysis File: 1983)

	General Practice	Family Practice	Internal Medicine	General Surgery	Orthopedic Surgery	Ophthalmology	Radiology
All Types	100.0%	100.0	100.0	100.0	100.0	100.0	100.0
Office Visits	39.8	33.5	25.0	5.5	9.0	0.2	0.6
Hospital Visits	36.7	39.8	40.4	6.3	2.6	—	0.6
Other Visits	3.2	3.4	0.9	0.1	—	—	—
Other Medicine	6.6	10.0	21.6	3.2	1.3	0.3	1.4
Surgery	4.3	3.7	6.1	84.5	87.0	99.5	0.3
Radiology*	—	0.4	—	—	—	—	97.1
Pathology	9.3	9.6	6.0	0.3	—	—	—

*Professional component only.

The study established that a large fraction of aggregate Part-B allowed charges and services are for physicians' visits and surgical procedures. Companion data showed that most of the visits are provided by physicians in the three primary care specialties: general and family practice, and internal medicine. The study indicates that a large fraction of surgical allowed charges are for services provided by general and orthopedic surgeons, and ophthalmologists. The discussion also reveals that ten important procedures accounted for a surprisingly large fraction (43 percent) of allowed charges and service volume (54 percent) in the study state.

Implicitly, policy makers might make great progress toward achieving goals such as cost containment and enhancing physicians' rates of participation in the Medicare program by adjusting absolute and relative fees for a small number of procedures. However, it may prove difficult to simultaneously achieve multiple goals through such adjustments. For example, to address the goal of cost containment in the short run, policy makers might employ a fee schedule which reduces the relative prices paid for some classes of visits or surgical procedures. However, such a strategy might be incompatible with attempts to achieve other goals such as establishing equity in relative payments for cognitive procedures (notably visits) and other types of services.

One might argue that meeting the goals of cost containment, payment equity, and physician participation in Part-B under a fee schedule can be realized more easily in the long run. The latter two goals can be addressed in the design of the fee schedule if policy makers and providers are able to reach a consensus on appropriate relative fees for important procedures. Progress toward the goal of cost containment can be achieved over time by controlling the rate of increase in fee schedule payment levels. The success of that strategy will depend on the relative importance of real price increases (which are directly affected by a fee schedule) and other factors in determining the rate of increase in total program costs.

III. VARIATION IN ALLOWED CHARGES: IMPLICATIONS FOR STATEWIDE FEE SCHEDULES

There are many possible methods for constructing a Medicare fee schedule. one of the simplest and most straightforward is to base fee schedule payments on regional mean allowed charges: for example, on statewide means during a base year. Given an initial schedule Medicare could periodically update or adjust payment levels to meet various program goals: assuring adequacy of reimbursement levels, maintaining supplies of services, and control of total program costs to name a few.

Developing a fee schedule from existing charge data is conceptually simple. But implementation could prove difficult, especially if physicians offer organized resistance out of the fear that, among other consequences, it might restrict or reduce their Medicare practice revenues. In that case, the potential for resistance might be proportional to the expected difference between program payments under the proposed schedule and under the CPR reimbursement system.

Analysis of the distributions of physicians' actual allowed fees around statewide means provides information on the variation between traditional Medicare payments and their expected values under an hypothetical, average charge-based fee schedule and, consequently, on the potential for provider resistance. In table 3.1 are statistics describing such distributions for the 32 procedures each of which accounted for at least one-half percent of total allowed charges in South Carolina in 1983. The tighter the distributions about the means, the smaller the expected average difference between Medicare payments under the hypothetical fee schedule and under the traditional CPR system.

Table 3.1

Selected Medicare Procedures[*]
Mean Allowed Charges, Standard Deviations, and Coefficients of Variation
(South Carolina Analysis File: 1983)

		Percent of Total Allowed Charges In State	Mean Allowed Charge	Standard Deviation	Coefficient of Variation
Office Visits					
90080	Comprehensive: established patient	1.03%	$42.48	$15.47	.364
90020	Comprehensive: initial patient	0.81	38.11	17.53	.460
90060	Intermediate: established patient	1.37	18.23	3.68	.202
90050	Limited: established patient	9.57	12.83	2.35	.183
90040	Brief: established patient	0.72	11.54	2.74	.238
Hospital Visits					
90220	Comprehensive examination	4.56	54.63	13.76	.252
90250	Limited: follow-up	11.86	16.26	3.40	.209
90240	Brief: follow-up	0.53	13.99	2.59	.185
Other Medical Procedures					
93547	Selective angiography	0.67	563.27	46.64	.083
90620	Consultation: initial comprehensive	1.85	63.01	10.91	.173
90630	Consultation: initial complex	0.53	63.01	9.43	.150
99174	Critical care: extended	0.65	39.69	10.53	.265
99173	Critical care: intermediate	0.73	36.56	7.97	.218
93000	EKG	1.56	23.27	3.20	.138
Surgery					
33513	Quadruple bypass	0.65	3691.17	175.67	.048
33512	Triple bypass	0.92	3617.33	344.82	.095
27130	Arthroplasty	0.66	2009.57	257.69	.128
66980	Lens prothesis: cataracts	7.15	1335.70	139.51	.104
27244	Femoral fracture	0.89	1003.70	93.50	.093
44140	Colectomy	0.67	984.54	123.80	.126
27236	Femoral fracture: proximal end	0.52	835.26	55.86	.067
66920	Cataract removal: extraction lens	0.61	794.57	40.62	.051
52601	Transurethral Resection of Prostate	2.44	792.16	35.72	.045
47605	Cholecystectomy with cholangiography	0.69	702.04	72.98	.104
43239	Upper G.I. endoscopy with biopsy	0.52	229.48	34.54	.150
43235	Upper G.I. endoscopy	0.72	208.59	35.79	.172
Radiology					
74240	Upper G.I. tract and exam	0.51	31.12	3.22	.103
77405	Therapeutic: intermediate	0.51	24.10	3.05	.126
71020	Two view chest X-ray	1.34	13.76	1.44	.105
71010	Single view chest X-ray	1.01	9.71	.77	.079
Pathology					
82947	Glucose test	0.53	5.59	1.04	.186
81000	Urinalysis	0.70	3.79	.48	.125

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[*] Procedures which account for at least 0.5 percent of allowed charges in the state.

Table 3.1 contains the statewide mean allowed charge across all occasions of service for each procedure during the study year, and two measures of dispersion around the mean: the standard deviation and the coefficient of variation or CV.* The latter is the ratio of the standard deviation to the mean and is interpretable as a normalized standard deviation. If physicians' resistance to an average charge fee schedule is a function of the relative difference between CPR and fee schedule reimbursements, then the CV might be the most telling statistic. Alternatively, if physicians are sensitive to the expected absolute difference between payments under the two systems, then the standard deviation (the average deviation from the mean) might be the more appropriate index of potential resistance.

Analysis of Allowed Charge Distributions

There are a priori reasons to believe that CVs will not be large and, consequently, the many physicians might not offer strong resistance to a fee schedule paying statewide average charges per procedure. In the early 1970s, researchers reported CVs for physicians billed charges to be small; in the range of 0.10 to 0.50.** And it is reasonable to expect CVs for allowed charges to be even smaller, since they are bounded above by the prevailing charge screens. Analysis of the coefficients of variation confirms those

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*The standard deviation (s) of allowed charges (a) for a given procedure is around its statewide mean ($\bar{a}$) is:

$$s = \sqrt{\frac{\sum(a - \bar{a})^2}{n-1}}$$

where n is the number of occasions of service for the procedures.

**These findings are summarized in Juba [1979] pp. 15-17. While well below 1.0 in value they still exceed the CVs reported for competitively priced commodities, new cars and coal, in the range of 0.02 to 0.07.

expectations: about half are less than 0.15 and the remainder equals or exceed that value. They range from .05 (quadruple bypass and transurethral resection of prostate) to 0.45 (comprehensive new patient office visit). Thirteen of the 17 procedures with the greatest variability in allowed fees relative to their means (CVs equal or exceed 0.15) are medical procedures: hospital and office visit, consultations, and critical care examinations. At the other extreme, coefficients of variation are well below the 0.15 threshold for most of the surgical, radiology, and pathology procedures in the table. In only three cases do they exceed that threshold but none of those exceed 0.20 in value. This suggests that, of all physicians, primary care providers might be the most affected by implementation of a charge-based fee schedule.

However, analysis of the standard deviations yields different results: those of the surgical procedures exceed nearly all others. Standard deviations for non-surgical procedures range from $0.48 (urinalysis) to $46.64 (selective angiography). Conversely, those of the twelve surgical procedures range from $35 to $345 in value with the standard deviation for the surgical procedure accounting for the greatest share of allowed charges in the state, cataract lens prosthesis, in the middle of that range. If absolute differences between fee schedule and CPR reimbursements levels are a source of resistance to the fee schedule, it would most likely come from surgical specialists.

The preceding analyses identified procedures with the tightest fee distributions. But left unanswered is the question: what fraction of services fall within a narrow specified range around the mean. It is impossible to infer the answer analytically without precise knowledge of the type of distribution involved, and all of its parameters. However, it is possible to answer the question empirically by computing the fraction of services with allowed fees within a fixed interval (plus and minus 10 percent for example) around the mean for each procedure. The greater that fraction, and the narrower the interval, the greater the similarity between program payments under the CPR system and the proposed fee schedule.

Analysis shows that allowed fees for 80 percent or more of most listed surgery, radiology, and pathology services fall within 10 percent of the statewide mean (table 3.2) Conversely, allowed fees for much smaller fractions of visits and other medical services fall within the same narrow interval around their respective means. For example, allowed charges are within 10 percent of the means for between 3 and 12 percent of most types of office visits. Expanding the interval to include allowed charges within 25 percent of the mean substantially increases the fraction of services included. For example, allowed charges for about 12 percent of limited office visits are within 10 percent of the statewide mean, but allowed charges for 85 percent of those visits are within the 25 percent interval. Essentially the same patterns hold for the listed hospital visits and other medical services. Depending on the procedure, between 9 and 82 percent of services have allowed charges within 10 percent of the mean: and those fractions increased to 53 and 100 percent respectively, when the interval expands to plus and minus 25 percent of the mean.

Why are the distributions of fees for visits less tight than for other procedures? One reason is that physicians in many different specialties provide visits: specialties subject to different prevailing charge screens, and consequently, different bounds on allowed charges. Conversely, surgery and other non-medical procedures are often the exclusive province of physicians in one or a few specialties. A limited number of specialties providing a service implies a limited range of prevailing charges for that service and, consequently, tighter distributions of allowed fees.

An implication of that reasoning is that distributions of allowed fees for visits around _specialty-specific_, statewide means should be tighter than the distribution around the specialty undifferentiated mean for the services. Analysis demonstrates that to be the case (table 3.2). For example allowed charges for 94 percent of limited office visits, and 87 percent of limited hospital visits, are within 10 percent of their respective specialty-specific means. In contrast, allowed fees for only 12 percent and 53 percent of services for those two, respectively, are within 10 percent of the statewide, specialty-undifferentiated means.

Underlying this analysis is the premise that physician acceptance of a Medicare fee schedule varies directly with the degree of correspondence between program payments under the schedule and under the traditional reimbursement system. At the same time, it is plausible that physicians whose historical allowed payments are well below the statewide mean (i.e., below the hypothetical fee schedule values) would be among the least likely to openly criticize or resist the fee schedule. Conversely, the greatest opposition might come from physicians with historical allowed fees well above the mean.

Analysis of the fraction of services whose allowed fees exceed the statewide mean by at least 10 percent is informative. Given the relative tightness of the fee distributions for surgery, radiology, and pathology services, it is not surprising that allowed fees for only a small fraction exceed the statewide mean by 10 percent or more (table 3.2). In fact, for 14

Table 3.2

Distribution of Services with Respect to
Statewide (and Specialty-Specific) Mean Allowed Charges
(South Carolina Analysis File: 1983)

		Percent of Services With Allowed Charges				Percent of Services With Allowed Charges Equal or Exceeding 110% of:	
		Within 10% of:		Within 25% of:			
		State Mean	Specialty Mean	State Mean	Specialty Mean	State Mean	Specialty Mean
Office Visits							
90080	Comprehensive: established patient	7%	(33%)	41%	(81%)	43%	(40%)
90020	Comprehensive: initial patient	3	(66)	21	(89)	34	(14)
90060	Intermediate: established patient	41	(69)	89	(97)	26	(16)
90050	Limited: established patient	12	(94)	85	(98)	32	(2)
90040	Brief: established patient	10	(83)	81	(95)	45	(5)
Hospital Visits							
90220	Comprehensive examination	14	(68)	52	(95)	41	(13)
90250	Limited: follow-up	53	(87)	93	(96)	37	(2)
90240	Brief: follow-up	54	(55)	77	(95)	25	(23)
Other Medical Procedures							
93547	Selective angiography	82	(88)	100	(100)	0	(4)
90620	Consultation: initial comprehensive	31	(77)	91	(96)	46	(10)
90630	Consultation: initial complex	46	(72)	92	(95)	37	(17)
99174	Critical care: extended	9	(63)	53	(80)	46	(17)
99173	Critical care: intermediate	37	(47)	86	(84)	35	(28)
93000	EKG	60	(59)	95	(95)	15	(17)
Surgery							
33513	Quadruple bypass	100		100		0	
33512	Triple bypass	81		100		0	
27130	Arthroplasty	89		96		0	
66980	Lens prothesis: cataracts	83		100		0	
27244	Femoral fracture	93		99		0	
44140	Colectomy	73		99		13	
27236	Femoral fracture: proximal end	100		100		0	
66920	Cataract removal: extraction lens	100		100		0	
52601	TUR Prostate	96		100		0	
47605	Cholecystectomy with cholangiography	89		100		0	
43239	Upper G.I. endoscopy with biopsy	63		90		18	
43235	Upper G.I. endoscopy	48		84		23	
Radiology							
74240	Upper G.I. tract and exam	82		100		3	
77405	Therapeutic: intermediate	100		100		0	
71020	Two view chest X-ray	86		100		0	
71010	Single view chest X-ray	94		100		0	
Pathology							
82947	Glucose test	81		95		0	
81000	Urinalysis	83		96		0	

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*Procedures which account for at least 0.5 percent of allowed charges in the state.

of the 18 study procedures in those three groups, allowed fees never exceed the mean by 10 percent or more. In contrast, allowed fees for a substantial fraction of office and hospital visits (25 to 43 percent) are beyond the mean-plus-10 percent threshold. But controlling for specialty substantially reduces those fractions: for instance, allowed fees exceed specialty specific means by 10 percent or more for only two percent of the limited office and hospital visits in the study state.

Are Prevailing Charge Screens a Fee Schedule?

A purpose of the preceding analyses of fee distributions was to inform the question of possible physician resistance to a fee schedule. The greater the dispersion in actual allowed fees, the greater the possible disparity between traditional and fee schedule-based Medicare reimbursements, and the greater the potential resistance. At the same time, those results inform a related research issue: the extent to which program reimbursements under CPR and a prototype fee schedule would be identical, or nearly so. The findings of tight fee distributions for surgery, radiology, and pathology services imply that the CPR system approximates a statewide fee schedule in those cases. Findings with respect to distributions of fee for visits and other medical procedures suggest that the CPR system is akin to a specialty-specific fee schedule for those services.

But why is there so little variation in allowed fees--especially for non-medical procedures? One possibility is that allowed charges for most services are established at the statewide, specialty group-specific, prevailing fee. If so, prevailing charges are a schedule of fees per se. But is that the case? Analysis of the fractions of services (table 3.3) and allowed charges (table 3.4) reimbursed at different fee screens shows that prevailing fees are

Table 3.3

Percent of Services Where Allowed Charges Are Set at Billed, Customary, and Prevailing Fees
- by Type of Service -
(South Carolina Analysis File: 1983)

	All*	Office Visits	Hospital Visits	Other Medicine	Surgery	Radiology**
billed	18.2%	11.3%	12.8%	30.6%	31.1%	11.4%
customary	26.2	17.3	23.6	35.5	41.0	41.7
prevailing	50.6	68.6	62.0	32.6	26.9	38.5
other	5.1	2.8	1.6	1.3	.9	8.3

*Includes listed services, other visits, and pathology.

**Professional component only.

Table 3.4

Percent of Allowed Charges Set at Billed, Customary, and Prevailing Fees - by Type of Service - (South Carolina Analysis File: 1983)

	All*	Office Visits	Hospital Visits	Other Medicine	Surgery	Radiology**
billed	15.7%	12.4%	11.4%	27.0%	15.4%	13.0%
customary	38.7	19.7	22.4	34.7	53.4	41.2
prevailing	43.2	65.2	64.6	37.0	30.3	38.9
other	2.3	2.8	1.7	1.2	.9	6.9

*Includes listed services, other visits, and pathology.

**Professional component only.

the biding constraint on allowed charges for approximately half of all services.[*] But by implication, the physician-specific billed or customary charge is the binding constraint in an equally large fraction of cases. So even though program-controlled prevailing charges are an important determinant of allowed fee levels, they do not constitute a schedule of fees per se.

Analysis also shows there is wide variation in the fraction of allowed charges established at the prevailing screen for different types of service. Allowed fees for approximately two-thirds of office and hospital visits are established at the statewide, specialty-specific prevailing. In contrast, that is the case for only about one-fourth to one-third of the other types of service: surgery, radiology, pathology, and non-visit medical procedures.

Also of interest is the extent to which prevailing fee screens might approximate specialty-specific fee schedules for services provided by particular specialties. It has already been established that allowed charges are most often set at prevailing fees for visits: and primary care physicians provide most visits. Hence, of all specialists, general practitioners, family practitioners, and internists are most likely to have their allowed fees set at the statewide prevailing. Study data (table 3.5) substantiate that. Across the selected specialties, the fraction of allowed charges paid at prevailing levels exceeds 50 percent in only three cases: general practice (57 percent), family practice (59 percent), and internal medicine (51 percent). Orthopedic surgeons are close behind: 48 percent of their allowed fees are set at the prevailing charge. Conversely, the statewide prevailing fee is a much less important determinant of allowed charges for services of general surgeons, ophthalmologists, and radiologists.

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[*] These data are for all services in the South Carolina analysis file, not just the 32 high volume procedures.

Table 3.5

Percent of Allowed Charges Set at
Billed, Customary, and Prevailing Fees
- by Provider's Specialty -
(South Carolina Analysis File: 1983)

	All Providers	General Practice	Family Practice	Internal Medicine	General Surgery	Orthopedic Surgery	Ophthal-mology	Radio-logy
billed	15.7%	20.7%	15.2%	17.4%	20.8%	13.1%	12.8%	12.9%
customary	38.7	20.5	22.9	28.5	49.7	38.1	72.3	40.4
prevailing	43.2	56.8	59.0	51.2	28.4	48.1	14.6	39.7
other	2.3	2.0	2.9	2.9	1.1	.7	.3	7.0

*Includes physicians in listed specialties and others.

Summary and Discussion

Physicians views on a Medicare fee schedule might depend on the degree of correspondence between practice revenues under it and under the CPR reimbursement system. If expected revenues under the two systems are similar, physicians might be more supportive of the fee schedule than if revenues differ markedly. Furthermore, if there is physician resistance, its strength may depend on either the absolute or relative magnitude of the expected shortfall between allowed charges under the fee schedule in contrast to their values under CPR reimbursement.

Analysis of distributions of allowed charges for a selected group of Medicare procedures found little variation in charges for some: primarily surgery, radiology and pathology services. One interpretation of those findings is that payments under the CPR reimbursement system approximate those under a fee schedule for those procedures. In contrast, allowed charges for medical procedures--especially visits--varied considerably. That suggests program payments for those services might differ markedly under the fee schedule in comparison to the CPR system, and that primary care providers might be more sensitive than others to the financial implications of a Medicare average charge-based fee schedule.

A caveat to those conclusions is they are based on relative statistics: coefficients of variation and fractions of procedures reimbursed at different multiples of the mean fee. But physicians might respond to absolute rather than relative differences between historically allowed charges and those under the hypothetical fee schedule. If so, the greatest potential resistance to the fee schedule might be among physicians expecting the greatest absolute changes in allowed fees: surgical specialists.

An examination of the frequency with which allowed fees are set at the billed, customary, or prevailing charge did not support the hypothesis that prevailing charges are a schedule of fees per se. In all but a few cases, billed and customary fee screens (which are specific-to individual physicians) are at least as important as the prevailings in setting allowed charge levels.

In sum, replacing the CPR reimbursement system with a fee schedule paying statewide mean allowed charges will have the greatest percentage effects on practice revenues derived from medical procedures, and the smallest effect on revenues derived from surgery, radiology, and pathology. If physicians' willingness to support a Medicare fee schedule is a function of expected percentage changes in allowed fees, the potential for resistance is greatest among those whose practices are comprised primarily of medical services: primary care physicians. However, one method for reducing the effect on medical services is to set fee schedule payments at specialty-specific mean fee levels thereby reducing the expected variation between fee schedule and traditional CPR payments.

IV. ASSIGNMENT RATES, PHYSICIANS´ MEDICARE REVENUES, ALLOWED CHARGES, AND BILLED FEES

Traditionally, physicians could exercise either of two reimbursement options under the CPR payment system. Under one option, the physician accepts assignment of the claim, thereby accepting the program´s allowed charge as payment in full. The Medicare program pays the physician 80 percent of the allowed fee, and the beneficiary pays the residual 20 percent. Under the second option the physician foregoes assignment and collects from the beneficiary the entire billed charge. In turn, Medicare reimburses the beneficiary for 80 percent of the allowed charge net of any outstanding deductibles.* Clearly, beneficiaries´ copayments are a function of the physician´s assignment decision. Deductibles aside, beneficiaries´ liabilities are the 20 percent coinsurance for assigned claims; for non-assigned claims, they are liable for the coinsurance and for any difference between the billed and allowed charges for non-assigned services. Hence beneficiaries´ copayments, and their access to care, depend on physicians´ assignment decisions.

A key issue in reforming or replacing the CPR reimbursement system is the question of how to preserve physicians´ willingness to accept assignment on a large fraction of their Medicare caseload. Alternatives range from creating incentives to preserve (or increase) case-by-case assignment rates to mandating assignment for all services. This section informs debate on the issue of Part-B payment reform by providing background on physicians´ assignment patterns--and the relationship between assignment rates, physicians' Medicare revenues, and their billed and allowed charges.

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*Under provisions of the Deficit Reduction Act of 1984, physicians have the option of becoming participating providers who agree to accept assignment on all Medicare claims for a year.

Physicians' willingness to provide Part-B services under mandatory assignment is especially important. Some payment reform strategies might reduce the rate of growth in program payments per service. Physicians could avoid associated losses in Medicare revenues by reducing their historic assignment rates, thereby increasing the rate at which they collect the entire billed charge from beneficiaries. Hence mandatory assignment or some other mechanism may be required to minimize possible transfers of economic burden from physician to beneficiaries.

One measure of physicians' willingness to provide service under a policy of mandatory assignment is the expected reduction in their Medicare revenue that such a policy might entail. That loss would be the balance or difference between the billed and allowed charges for services they would not have assigned save for mandatory assignment. The fraction of physicians' actual Medicare practice revenues in a recent year accounted for by the balance of (unassigned) bills may be a reasonable proxy for those expected losses.

Table 4.1 provides evidence on the importance of balance-billing to Medicare providers in South Carolina. Across all physicians, 63 percent of their potential Part-B practice revenues are paid by the Medicare program, and the remaining 37 percent by the beneficiary in various ways—approximately 10 percent through deductibles, 16 percent through coinsurance, and 11 percent through the balance of unassigned bills.* The relative contribution of

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*Practice revenues are estimated under the assumption that the physician collects 100 percent of all bills for non-assigned care and all copayments for assigned services. No allowance is made for beneficiary non-payment of coinsurance, deductibles, or the bill for Medicare services.

Table 4.1

Percentage Decompositon of Physicians´ Medicare Revenue - by Specialty: All Claims - (South Carolina Analysis File: 1983)

Specialty	Total Revenue	Program Payments	Beneficiary Deductible	Beneficiary Coinsurance	Balance of Bill
All Specialties*	100.00%	63.38	9.55	15.85	11.22
General Practice	100.00	48.06	22.29	12.02	17.63
Family Practice	100.00	50.18	18.67	12.55	18.61
Internal Medicine	100.00	58.04	12.00	14.51	15.45
General Surgery	100.00	70.97	4.89	17.74	6.40
Orthopedic Surgery	100.00	66.72	4.65	16.68	11.95
Ophthalmology	100.00	72.40	1.11	18.10	8.39
Radiology	100.00	70.78	10.25	17.69	1.28

*Includes physicians in listed specialties and others.

balance-billings to Medicare practice revenues varies by specialty reflecting differences in their assignment rates and in the spread between average billings and allowed charges.* Balances of bills are a higher percentage of the Medicare revenues of primary care providers--whose Medicare allowed charges are more constrained by prevailing charge limits—in contrast to other specialties. Balances of unassigned bills comprise 18 percent of general practitioners' Medicare revenues, 19 percent of family practitioners' and 15 percent of internists'. In contrast, balances contributed only slightly more than 1 percent to the Medicare practice revenues of radiologists (billing independently of hospitals) 6 percent to general surgeons' revenues, and 8 percent to ophthalmologists'. It is worth noting that the Congressional Budget Office found a similar pattern--greater contribution of balance billings to primary care providers' Medicare revenues—in an analysis of Part B data in Washington state.**

The financial implications of mandatory assignment are likely to be different for physicians with different historical patterns of assignment. All else equal, imposition of mandatory assignment will have little effect on the practice revenues (and associated beneficiaries' liabilities) of physicians who historically accept assignment at a high rate. The converse holds for providers whose historical assignment rates were low. Table 4.2 displays data on the simulated implementation of mandatory assignment under CPR reimbursement in South Carolina. The simulations presume that CPR reimbursement rules and providers' practice volume are unchanged save for requiring assignment on all services. Consequently, the simulated reduction in practice revenues (and beneficiary liabilities) are best interpreted as upper bounds on actual values.

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*Unpublished nationwide HCFA data for 1982 show different specialties accepted assignment of reasonable charges at different rates: for example, assignment rates for general and family practitioners were 40 percent and 42 percent, while rates for general surgeons and radiologists were 50 percent and 58 percent, respectively.

**In a private communication, Sandra Christensen of the Congressional Budget Office reported that bill balances accounted for the following percentages of Washington physicians' potential Medicare revenues in 1983: general practice (17%), family practice (17%), internal medicine (16%), general surgery (14%), orthopedic surgery (15%), and ophthalmology (14%).

Analysis of those data reveal several important findings. First, imposition of mandatory assignment would have resulted in only small (less than 10 percent) reductions in Part-B revenues for approximately half the providers in the state. For the remaining providers, mandatory assignment implies potential losses of between 12 and 27 percent of total Medicare practice revenues. Second, approximately 23 percent of Medicare providers always or nearly always accepted assignment; that is, accepted assignment on more than 90 percent of their Medicare services. Conversely, approximately 21 percent almost never accepted assignment (i.e. accepted assignment on 10 percent or fewer Medicare services). Providers in those two categories, respectively, accounted for approximately 25 percent and 10 percent of physicians' Part-B revenues in the state. These statistics suggest that many physicians with low assignment rates are marginal Medicare providers--providing fewer or less expensive Medicare services than do other physicians. Finally, the data of table 4.2 suggest that a policy of mandatory assignment can potentially generate substantial savings in beneficiaries' liabilities. The simulated reductions in beneficiaries liabilities for all services were 31 percent of their values under case-by-case assignment.

Table 4.2

Simulated Effects of All Providers Accepting Assignment on All Medicare Services (South Carolina Analysis File: 1983)

Providers' Past Assignment Rate	No. of Providers	Current		100% Assignment Option: Physician Revenue (000$)	Percent Change From Current Revenue	100% Assignment Option: Beneficiary Liability (000$)	Percent Change From Current Liability
		Physician Revenue (000$)	Patient Liability (000$)				
100%	248	1505	385	1505	0.0	385	0.0
96-99%	207	14718	3890	14687	-.2	3858	-.8
91-95%	97	3070	846	3036	-1.1	811	-4.1
86-90%	74	1694	557	1917	-2.4	510	-8.3
81-85%	90	2911	895	2816	-3.2	801	-10.6
76-80%	62	2768	845	2673	-3.4	750	-11.2
71-75%	69	2910	982	2762	-5.1	835	-15.0
66-70%	80	1787	624	1670	-6.5	507	-18.7
61-65%	66	1800	685	1628	-9.6	513	-25.1
56-60%	59	1809	663	1645	-9.1	499	-24.8
51-55%	88	4040	1377	3654	-9.6	991	-28.0
46-50%	75	3450	1272	3092	-10.4	914	-28.2
41-45%	81	4586	1617	4028	-12.2	1059	-34.5
36-40%	83	3571	1440	3055	-14.4	924	-35.8
31-35%	81	4176	1667	3524	-15.6	1015	-39.1
26-30%	93	4947	2013	4117	-16.8	1182	-41.3
21-25%	101	4133	1807	3343	-19.1	1017	-43.7
16-20%	118	5799	2482	4706	-18.9	1388	-44.1
11-15%	144	6812	3045	5345	-21.5	1577	-48.2
6-10%	124	4852	2300	3760	-22.5	1207	-47.5
1-5%	144	2776	1446	2029	-26.9	699	-51.6
0%	246	743	334	583	-21.2	175	-47.3
Total	2430	85127	31171	75577	-11.2	21621	-30.6

Assignment Rates and Medicare Charges: A Review of the Literature

Having identified the specialties which may realize the greatest percentage reductions in revenues under mandatory assignment, the study now turns to the question of how physicians' historic patterns of assignment vary with charges for Medicare services. A small but important body of literature exists on the responsiveness of practice assignment rates (the ratio of assigned to total Medicare services) to changes in allowed fees. Not surprisingly, the consensus is that the greater the allowed charge the greater the practice assignment rate. Only the degree of responsiveness is at issue. For example, Rice and McCall [1983] contrasted the results of their study of Colorado physicians' assignment rates in 1976 and 1978 with findings for California physicians between 1972 and 1975 reported by Paringer [1980].* Their estimates of the elasticity of assignment with respect to allowed fees (i.e. the percentage change in assignment rate associated with a one percent change in allowed charges) were in the 0.7 and 0.9 range. Paringer's estimates were greater (1.7 to 5.1). In contrast, Mitchell and Cromwell [1982] reported results based on a nationwide survey of physicians in three specialties in 1976. Their analyses showed that a one percent increase in the Medicare prevailing charge for a hospital visit generated a 1.47 percent increase in the percentage of a physician's bills to Medicare taken on assignment. Finally, one study extends these results to the non-elderly population. Yett et al. (1983) reported that Blue Cross allowed charge levels were the dominant factor explaining physician willingness to accept those charges as payment in full for non-Medicare services.

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*Both studies examined voluntary assignment rates: those for services to all Medicare beneficiaries except those jointly covered by Medicaid for which assignment is mandatory.

The empirical evidence on the positive association between allowed charges and physician assignment rates is consistent with traditional price theory. The higher the price (allowed charge) the greater the supply response (physician´s willingness to accept assignment at the Medicare price per service). Theory is less able to predict relationships between physicians´ billed charges and their assignment rates. Rodgers and Musacchio [1983] suggest that billed charges affect providers´ willingness to accept assignment in two opposing ways. First, the billed fee represents the opportunity cost associated with assignment--the higher the bill, the more costly is the decision to accept assignment and the allowed charges as payment-in-full. Conversely, the risk of non-payment of non-assigned services increases directly with the provider´s billed charge. The larger the bill, the higher the risk of not collecting the entire amount. The existing research evidence on the billed charge-assignment rate relationship is mixed. Paringer [1980] estimated that a one percent increase in the billed charge per service unit would reduce physicians´ voluntary assignment rates by 2.8 to 6.0 percent. Rodgers and Musacchio [1983] estimated the relationship between physicians´ charges and their assigned caseload based on multivariate analysis of data from a 1978 nationwide survey of physicians. Their estimate of the elasticity of assigned caseload with respect to the allowed charge for visits was 0.38 and the elasticity with respect to the billed charge was -0.30. Conversely, Rice and McCall [1983] report that the probability of accepting assignment increases significantly with increases in the billed charge.

Finally, researchers have estimated the joint effects of the allowed and billed fees on assignment rates. This concept is measured in several ways. Cromwell and Mitchell [1982] employ a reduction rate variable in their analysis (the percent of times a carriers´ Medicare payment is less than the physician´s charge). Rice and McCall [1983] use the ratio of billed charge to allowed charge as an explanatory variable in their study of case-by-case assignment decision. Both reported a significant negative relationship between assignment and their respective billed-to-allowed charge measures. Rice and McCall estimate that a 10 percent increase in the billed charge relative to the allowed fee would decrease assignment rates by 0.5 percent. Mitchell and Cromwell conclude that the reduction rate has a significant negative effect on assignment rate: the estimated elasticity of assignment with respect to reduction rate was -3.27.*

The present study extends the works of others in two ways. First, it focuses on relationships between the Medicare charges and assignment rates of providers in different assignment rate categories. Doing so facilitates identification of patterns in the charge-assignment rate relationship. Second, the study examines relationships between charges and assignment rates for different types of services provided by physicians in different specialties. This enables the study to identify patterns in physicians assignment responses to billed and allowed charges that vary by specialty and type of service; patterns that other researchers did not explicitly identify.

Assignment Rates and the Size of Physicians´ Medicare Practices

One issue not addressed in the literature is the degree of covariation between assignment rates and the absolute size of Medicare practices. To investigate that covariation, this study reports means of total annual Part-B billed charges for physicians in selected specialty and assignment rate categories (table 4.3). Several patterns are apparent in those data. First, physicians with extremely low practice assignment rates (10 percent or less) have Medicare practices that are well below (generally less than half) the mean size for their specialty. Furthermore, except for internists and ophthalmologists, those physicians have smaller Medicare practices on average than do members of any other assignment rate groups. What cannot be inferred from these data is the direction of causality. Do some physicians have little opportunity to treat Medicare beneficiaries and, consequently, do not want to complicate their practice billing arrangements by taking assignment on a small number of claims? Conversely, do beneficiaries seek our providers whom they believe are most likely to accept assignment, thereby increasing the size of the Medicare practices of physicians with less extreme assignment patterns?

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*Mitchell and Cromwell reported mean reduction and assignment rates of 73 percent and 32 percent respectively. In their view, a 10 percent decrease in reduction rate (e.g. from 73% to 66%) would increase assignment rates by 33 percent (e.g from 32% to 44%).

At the other extreme are physicians who nearly always accept assignment (i.e. who assign more than 90 percent of their Medicare services). With two exceptions the Medicare practices of these physicians are not appreciably larger or smaller than the average across all physicians in their specialty. The two exceptions are family practice and internal medicine. The Medicare practices of physicians in those specialties who nearly "always" accept assignment are much smaller (less than half) than the statewide mean for family practitioners and internists independent of assignment rate.

If there is a general trend in these data it is that Medicare practices first increase then decrease in size with assignment rates: And the practices which accept assignment on between 11 percent and 50 percent of their Medicare

Table 4.3

Mean Size of Provider´s Medicare Practice
($1000 billed charges)
by Practice Assignment Rate: All Procedures
(South Carolina Analysis File: 1983)

	Percent Services Assigned						
	0-10%	11-25%	26-50%	51-75%	76-90%	91-100%	Average
All Specialties*	$16.6	$48.3	$55.0	$40.0	$40.9	$43.9	$39.8
General Practice	9.2	21.0	28.0	24.6	22.3	15.0	18.5
Family Practice	11.1	29.4	37.9	29.9	30.5	11.3	25.1
Internal Medicine	45.0	82.1	63.7	61.1	50.2	20.7	54.1
General Surgery	12.6	31.8	74.3	60.9	75.9	56.4	57.6
Orthopedic Surgery	28.0	102.1	62.8	45.3	38.8	54.9	53.7
Ophthalmology	48.7	84.4	171.2	37.0	76.5	63.9	81.2

*Includes physicians in listed specialties and others.

services tend to be larger (in terms of billed charges) than others in the state.*

Assignment Rates, Billed Charges, and Allowed Fees

The consensus in the literature is that physicians respond to marginal increases in Medicare allowed charges by increasing their practice assignment rates. The evidence on their responses to the opportunity to increase billed fees is mixed, but the weight of evidence suggests that they reduce assignment rates, at the margin, as they increase billings. Questions not adequately addressed by recent studies concern the degree of consistency in those relationships across different specialties and across physicians with different current assignment rates. An examination of trends in physicians' allowed and billed charges in South Carolina provides some answers to these questions. Consider the patterns in statewide mean allowed charges (table 4.4) and billings (table 4.5) of physicians with different assignment rates for some representative procedures. Inspection of those data reveals that most of the variation in allowed charges for a limited office visit is associated with specialty differences and not assignment rates. Beyond that, there is no apparent evidence of any systematic, positive relationship between physicians' visit assignment rates and allowed charge levels. And the data are inconclusive on the direction of any relationship between allowed charges and ophthalmologists' assignment rates for insertion of an intraocular lens. A possible explanation is that allowed fees are at the specialty specific

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*Sandra Christensen of the Congressional Budget Office provided data similar to table 4.3 for Washington state. The same pattern appeared these: assignment rates of the largest Medicare practices were in the 11 percent to 50 percent range.

Table 4.4

Medicare Part B Allowed Charges per Service
- Means Across Physicians in Assignment Rate Categories -
(South Carolina Analysis File: 1983)

	Percent Services Assigned						
	0-10%	11-25%	26-50%	51-75%	76-90%	91-100%	All
Limited Office Visit							
General Practice	$11.0	11.0	11.0	11.0	10.8	10.5	11.0
Internal Medicine	15.6	15.5	14.7	15.2	14.6	15.5	15.4
General Surgery	13.7	13.3	13.3	13.4	13.8	13.7	13.5
Insertion of Lens Prothesis							
Ophthalmology	$1367	1342	1361	—	—	1248	1336

Table 4.5

Medicare Part B Billed Charges per Service
- Mean Across Physicians in Assignment Rate Categories -
(South Carolina Analysis File: 1983)

	Percent Services Assigned						
	0-10%	11-25%	26-50%	51-75%	76-90%	91-100%	All
Limited Office Visits							
General Practice	$17.8	17.1	15.8	16.1	14.3	14.7	16.3
Internal Medicine	21.0	20.2	18.2	19.1	18.1	19.4	20.0
General Surgery	16.7	16.9	17.5	18.1	17.7	18.3	17.6
Insertion of Lens Prothesis							
Ophthalmology	$1517	1534	1492	—	—	1436	1505

prevailing for visits more often than for other procedures. Consequently, there is less inter-physician variation in allowed charges for visits, and a less apparent relationship between those charges and assignment patterns.

Other data (table 4.5) support the research finding that assignment rates decline as billed charges increase. The office visit assignment rates of general practitioners and internists tend to increase as their average billed charges decline. The same holds for ophthalmologists´ assignment rates and billed charges for the lens implantation procedure--but not for general surgeons´ office visits. Nevertheless, the weight of the tabular evidence supports the inference of a negative relationship between physicians´ billed fees and their assignment rates.

Given the lack of variation in allowed charges for the limited office visit, the relative (to billed charge) rather than the absolute allowed fee might the more important predictor of physicians´ assignment rates. The relationships (table 4.6) between internists´ and general practitioners´ assignment rates and allowed/billed charge ratios for office visits are consistent with findings in the research literature. The smaller the relative difference between billed and allowed charges, the greater the assignment rate. What can be said about the relationships between charge ratios and assignment rates of the surgical specialists? Unfortunately, the tabular data do not display sufficiently consistent patterns to warrant strong inferences--except to say that there is no clear relationship between charge ratios and assignment rates in those two cases. Perhaps analysis of the assignment responses of surgical specialists to variation in relative charges may require imposing statistical controls on patients´ health status, practice costs, or other variables which may affect physicians´ allowed and billed fees.

Table 4.6

Medicare Part B Services
Allowed Charges as Percent of Billed Charges
- Mean Across Physicians in Assignment Rate Categories -
(South Carolina Analysis File: 1983)

	Percent Services Assigned						
	0-10%	11-25%	26-50%	51-75%	76-90%	91-100%	All
Limited Office Visit							
General Practice	62%	65	69	68	76	71	67
Internal Medicine	74	77	81	80	85	80	77
General Surgery	82	79	76	74	78	75	77
Insertion of Lens Prothesis							
Ophthalmology	90	87	91	—	—	87	89

Summary and Discussion

This chapter examined a set of relationships among physicians' Medicare assignment rates, their average charges, and Medicare practice revenues. Knowledge of those relationships is a prerequisite to an understanding of how physicians' willingness to accept assignment, and beneficiaries' access to care, might be affected if Medicare replaces its present CPR reimbursement system with a fee schedule.

One option open to policy makers is requiring assignment of all Part-B covered services. Under mandatory assignment, physicians would forfeit their authority to collect from beneficiaries any difference between the billed and allowed charge. Physicians' resistance to a mandatory assignment policy might be proportional to the fraction of their Medicare program revenues that would be forfeited as a result. The study showed that bill balances contribute the most to Medicare revenues of primary care providers, and the least to revenues of some surgical specialists and radiologists. Ceteris paribus, primary care providers would be most negatively affected, hence most likely to resist, a policy of mandatory assignment. Resistance to mandatory assignment might depend on the distribution of potential revenue losses among providers—that is, on the fraction of providers for whom losses might be substantial. Simulated implementation of mandatory assignment under CPR reimbursement reduces the Medicare program revenues of about half the physicians in the study state by a small amount, less than 10 percent. And that presumes no attempt by providers to recoup losses by increasing the volume of services they provide. However, for approximately one-quarter of the physicians in the state, mandatory assignment could reduce their Medicare revenues by 21 to 26 percent, a figure that seems high enough to cause them to take notice of any mandatory assignment proposal.

A review of recent multivariate analyses suggested that physicians´ assignment rates vary directly with Medicare allowed fees. On balance, research suggests that a 1 percent increase in allowed charges generates an approximately 1 percent increase in physicians´ assignment rates. Research also shows that the greater the relative shortfall between allowed and billed charges (or the greater the fraction of services for which the allowed payment is less than the billed charge) the lower are practice assignment rates. In sum, multivariate analysis provides evidence that, on average, physicians´ assignment responses to marginal changes in allowed fees varies with both the absolute and relative magnitudes of those changes.

But analysis of billed and allowed charges for particular procedures, and their relationships to practice assignment rates, suggested that the findings from multivariate studies might not hold uniformly in all cases. Rather, preliminary univariate analysis suggests that the relationships between South Carolina physicians´ assignment rates and their charges per procedure might vary by procedure and by provider´s specialty. Hence, implementation of a fee schedule which uniformly reduces (increases) allowed charges for some procedures might not uniformly reduce (increase) physicians´ assignment rates.

V. IMPLEMENTING MEDICARE FEE SCHEDULES: EFFECTS ON PROGRAM PAYMENTS, PHYSICIAN REVENUES, AND BENEFICIARY LIABILITIES

There are numerous methods and approaches for developing and implementing a Part-B fee schedule. Although the array of possibilities is almost limitless, the set of practical and feasible schedules is much smaller and can be represented by a few prototypes. This chapter simulates the effects of replacing the CPR reimbursement with two alternative fee schedules. The first is a schedule paying statewide mean allowed charges per procedure: it represents the class of schedules derived from charge-based relative value scales.* The second prototype establishes payments for selected services proportional to estimates of the total costs of the resources needed to produce them. Both scales are developed from physicians' average allowed charges in South Carolina for the 313 procedures which accounted for 90 percent of all Part-B allowed charges in the state in 1983. By construction, both scales are budget-neutral relative to Medicare program payments. That is, total program payments for a fixed set of physicians' services under the fee schedule will be equal to payments under the CPR reimbursement system. The primary focus of the analysis will be on the effects of the fee schedules on program payments to different specialties for different types of services, on beneficiary liabilities, and on charges in physicians' Medicare practice revenues.

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*Hadley and Juba [1985] report that many existing RV scales are based on physicians' charges. Furthermore, the values of common procedures on different scales are highly correlated, suggesting that the decision as to which charge-based RV scale to select as the foundation of a fee schedule can be made on the basis of convenience.

Simulation Methods

The primary data underlying the simulations are mean charges and service counts for Medicare services provided by South Carolina physicians in 1983. Charge data for each physician-procedure combination include: mean allowed fees $(\overline{\text{allowed}})$, billed charges $(\overline{\text{billed}})$, and beneficiary deductibles $(\overline{\text{deductible}}\ )$ averaged over all the Medicare claims of a given provider for a procedure in the study year. Service counts available for each provider-procedure combination include annual totals (f), and counts of assigned (f_a) and nonassigned (f_n) services.

Under traditional CPR reimbursement, the Medicare program is liable for 80 percent of the allowed fee per service less any outstanding deductible payments. Total program payments for a particular procedure provided by a particular physician during the year are:

$$.8 * f * (\overline{\text{allowed}} - \overline{\text{deductible}})$$

The maximum revenue a provider can collect for those services--assuming no bad debt or other non-payments--is:

$$f_a * (\overline{\text{allowed}}) + f_n * (\overline{\text{billed}})$$

And the maximum beneficiary liability is the difference between provider revenues and program payments. Replacing the mean allowed fee with the fee schedule amount in those expressions yields program payments, provider revenues, and beneficiary liabilities under the hypothetical fee schedule. Summing physician-procedure-specific values over a group of procedures for all physicians in the state generates statewide totals. The study reports percentage differences between totals under the fee schedule and the base line (CPR) reimbursement system.

Physicians´ Medicare revenues depend on the program´s allowed fee levels and on their assignment decisions. The economic literature suggests that the assignment decision is strongly affected by allowed charge levels and that elasticities are approximately 1.0.* That is, a one percent increase in allowed charge generates an approximately one percent increase in assignment rate. In keeping with that principal the study adjusts practice assignment rates in some simulations, increasing (or decreasing) those rates as the fee schedule value exceeds (falls short of) the CPR allowed charge per procedure. Assuming the adjustment has no effect on practice service mix or total volume, it affects practice revenues and beneficiary liabilities--but not program payments. Consequently, the study simulates practice revenues and beneficiary liabilities for Medicare services under a fee schedule and each of three assignment rate elasticities (0, 0.5, and 1.0) and reports percentage differences between them and their baseline counterparts.**

Effects of Implementing a Fee Schedule Paying Average Allowed Charges

South Carolina data on the means and standard deviations of physicians´ allowed charges for high volume procedures suggest that payments and revenues

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*See the discussion in assignment rates and Medicare charges in Chapter IV.

**Let Δallowed be the percent difference between allowed fees under the fee schedule and the CPR reimbursement system. In each simulation, the physician-procedure-specific assignment rate is:

$$(1 + (k * \Delta\text{allowed})) * \text{rate}$$

where

k is one of the three elasticity values and rate is the assignment rate under baseline (CPR) reimbursement. In all cases, the simulated assignment rate is constrained to be in the [0,1] interval.

will not change substantially if Medicare implements a fee schedule paying average allowed charges undifferentiated by specialty. The relatively tight distributions of allowed charges around their statewide means (table 3.1) was evidence that program payments under an average charge fee schedule are frequently be within 15 percent of allowed fees under the CPR system. The results of simulated implementation of the mean allowed charge fee schedule (table 5.1) confirms that expectation. Across all specialties and types of service, total program payments under the revenue-neutral, specialty undifferentiated, fee schedule are unchanged from their values under the CPR system. But there are rather dramatic differences in the changes in program payments for services by different specialties. The greatest effects of the fee schedule are the nearly 17 percent and 12 percent increases in payments for general and family practitioners' services; and the largest reduction in the nearly 8 percent decrease in program payments for internists' services. In contrast, payments for care by the three surgical specialties and to radiologists are largely unchanged; total payments under the average charge fee schedule are within one percent of their levels under the CPR system.

Further inspection of those data shows that the cause of the overall reduction in program payments for internists' services is the relatively large reductions in payments for office visits (-17 percent) and for hospital visits (-9 percent). Similarly, the increases in program payments for the services of general and family practitioners is primarily attributable to the large (12 to 20 percent) increases in payments for visits.

Effects on Practice Revenues

But what effect will changes in program payments have on physicians' practice revenues? Assuming no fee schedule-related change in assignment

Table 5.1

Percent Change in Medicare Program Payments
- Statewide Mean Allowed Charge Fee Schedule -
(South Carolina Analysis File: 1983)

	All[*]	General Practice	Family Practice	Internal Medicine	General Surgery	Orthopedic Surgery	Ophthal-mology	Radio-logy
office visits	0.0	19.6%	16.6	-16.5	1.2	-6.0	—	—
hospital visits	0.0	17.4	11.5	-8.8	6.6	—	—	—
surgery	0.0	—	—	8.4	0.1	-0.9	0.0	—
radiology	0.0	—	—	—	—	—	—	-0.1
pathology	0.0	1.3	-1.8	1.8	0.1	-4.5	—	—
all types[**]	0.0	16.5	11.9	-7.5	1.0	-0.6	0.1	-0.2

— procedures in the cell account for less than 5 percent of total allowed charges for that specialty.

[*] Includes physicians in listed specialties and others.

[**] Includes other medical services; excludes anesthesia.

patterns and ignoring the deductible, a given percentage change in program payments to physicians who always accept assignment generates an equal percentage change in their Medicare revenues. Conversely, the Medicare revenues of physicians who never accept assignment will be unaffected by any fee schedule-induced changes in program reimbursements for their services—ignoring bad debt or other collection problems. Consequently, percentage changes in practice revenues and program payments should be nearly identical for physicians with relatively high assignment rates: radiologists and general surgeons in South Carolina.* Simulated implementation of the average charge fee schedule (table 5.2) confirms those expectations. Changes in the practice revenues of general surgeons and radiologists (0.9 percent and -0.2 percent, respectively) are almost identical to the changes in program payments for their services. Conversely, the fee schedule has a greater effect on program liabilities for the services of primary care physicians than on their Medicare revenues. That is because primary care physicians have relatively low assignment rates, and preserve for themselves the option of collecting the billed fee from Medicare patients: fees and revenues which are not directly affected by changes in allowed payment levels.

A switch from the CPR reimbursement system to a fee schedule paying average charges could make high priced physicians (those with above average allowed fees, historically) relative losers and low priced providers relative gainers. But physicians could mitigate potential reductions in revenues by lowering assignment rates and aggressively collecting their full billed charges for Medicare services. Different assumptions as to physicians´ propensity to do so, that is, alternative assumptions as to the price elasticity of assignment, produce different results.

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*The service assignment rates of specialists in the primary South Carolina data file are: all specialties (50%), general practitioners (46%), family practitioners (45%), internists (34%), general surgeons (62%), orthopedic surgeons (45%), ophthalmologists (42%), and radiologists (97%). Assignment rates weighted by allowed charges are approximately the same.

Elasticities in the 0.5 to 1.0 range imply modest fee schedule-related growth in all physicians´ Medicare revenues: 0.8 to 1.3 percent. But those increases are not uniform across specialties. Rates of growth in the revenues of general practitioners, family practitioners, and ophthalmologists are essentially invariant across the three simulations (table 5.2). But internists´ could reduce losses in revenues from about 2 percent to about 0.6 percent of their baseline values by altering their assignment patterns. Radiologists could convert small potential reductions to small gains in revenues under the same strategy: and general surgeons could more than double their expected small revenue gains (from 0.9 percent to 2.6 percent). Complementary data (table 5.3) reveal that simulated revenues from hospital visits increase the most--in absolute percentage terms--as physicians change their assignment pattern in response to the fee schedule. The absolute increase in revenues from other procedures is approximately one percentage point--measured as the difference between percent changes in the zero and unit elasticity simulations.

From the physician´s perspective, what is the likely bottom-line significance of a shift in Medicare reimbursement policy from the CPR system to an average charge fee schedule? Simulations based on South Carolina data suggest that it means only modest percentage changes in their Medicare practice revenues, presuming case by case assignment is preserved. General and family practitioners realize the greatest gains in revenues: almost 7 percent and 4

Table 5.2

Percent Change in Physicians´ Medicare Revenues For All Procedures: By Specialty
- Statewide Mean Allowed Charge Fee Schedule and Alternative Assignment Responses -
(South Carolina Analysis File: 1983)

Assumed Elasticity	All*	General Practice	Family Practice	Internal Medicine	General Surgery	Orthopedic Surgery	Ophthal-Mology	Radio-logy
0.00	0.2	6.9	4.2	-2.2	0.9	0.1	0.8	-0.2
0.50	0.8	7.1	4.3	-1.4	1.8	0.5	0.9	0.2
1.00	1.3	7.1	4.2	-0.6	2.6	0.9	1.0	0.6

*Includes physicians in listed specialties and others.

Table 5.3

Percent Change in Physicians´ Medicare Revenues For All Procedures: By Type
- Statewide Mean Allowed Charge Fee Schedule and Alternative Assignment Responses -
(South Carolina Analysis File: 1983)

Assumed Elasticity	All*	Office Visits	Hospital Visits	Surgery	Radiology	Pathology
0.00	0.2	0.8	0.6	0.0	-0.1	-0.2
0.50	0.8	1.2	1.4	0.5	0.3	0.4
1.00	1.3	1.6	2.1	1.0	0.7	0.9

*Includes listed procedure types and other medical procedures: excludes anesthesia.

percent, respectively. The greatest losses are the modest 2 percent reduction in the Medicare practice revenues of internists--reductions which internists might eliminate by changing their assignment behavior. In the simulations, most of those gains and losses are associated with revenues from office and hospital visits, the procedures which account for two-thirds or more of allowed charges for the services of primary care physicians.

Even though percentage changes in aggregated practice revenues are modest, changes at the level of the individual practice might be considerably greater. If a large fraction of physicians anticipate non-trivial reductions in Medicare revenues under a fee schedule, there might be considerable opposition to its implementation even if other providers anticipate large increases. The distributions of physicians across simulated percentage changes in revenues (table 5.4) show that reductions almost never exceed five percent of current revenues. That pattern holds for all the important specialties except internists: almost 26 percent of them realize simulated reductions of between 6 and 25 percent of current Medicare revenues. For any physician, reductions (or simulated gains) in excess of 25 percent are relatively rare.

Furthermore, the distributions show that the simulated gains in aggregated revenues of general and family practitioners are the result of above average gains for many, and revenue reductions for only a few of them. Simulated Medicare practice revenues under the fee schedule exceed their values under CPR reimbursement by five percent or more for over one third of the general and family practitioners. But in most cases those gains do not exceed 25 percent. finally, gainers and losers among other specialties are more tightly distributed around no-change than was the case for the primary

Table 5.4

Distribution of Physicians by Percent Change in Medicare Revenues
- Statewide Mean Allowed Charge Fee Schedule -
(South Carolina Analysis File: 1983)

	Greater than 25%	-11% to -25%	-6% to -10%	-1% to -5%	no change	+1% to +5%	+6% to +10%	11% to 25%	Greater than 25%
All Specialties*	0.5%	5.9%	6.5%	21.9%	23.1%	22.3%	10.1%	7.3%	2.5%
General Practice	0.0	0.4	1.0	1.0	26.0	33.8	18.7	13.7	5.3
Family Practice	0.0	1.4	0.0	2.8	20.9	39.4	24.1	9.2	2.1
Internal Medicine	1.0	13.3	13.0	43.5	16.4	8.3	3.1	0.9	0.6
General Surgery	0.0	0.9	7.9	29.0	16.4	29.4	6.1	8.4	1.9
Orthopedic Surgery	0.0	0.0	1.9	33.7	34.6	15.4	4.8	7.7	1.9
Ophthalmology	0.0	1.0	4.9	22.6	41.2	12.8	7.8	7.8	2.0
Radiology	0.0	0.0	7.6	50.6	14.2	15.2	7.6	3.8	0.0

*Includes physicians in listed specialties and others.

care physicians: simulated Medicare revenues are within five percent of baseline values for 75 percent or more of the general surgeons, orthopedic surgeons, ophthalmologists, and radiologists.

Effects on Beneficiary Liabilities

Practice revenues are the sum of beneficiary liabilities and program payments for covered services. Consequently, differences between the percentage growth in practice revenues (table 5.1) and in program payments (table 5.2 and 5.3) are a direct result of the expected growth in beneficiary liabilities should the fee schedule replace the CPR reimbursement system. Simulated changes in practice revenues and program payments are approximately equal for services provided by surgical specialists and radiologists. Conversely, there is rather wide disparity between simulated percentage changes in primary care providers' Medicare revenues and the program's liabilities for those services. Program payments grew substantially faster than the practice revenues of general and family practitioners, implying substantial decreases in beneficiary liabilities--a finding confirmed by the data on those liabilities in table 5.5. The converse holds for beneficiary liabilities for the services of internists: they increase by nearly 9 percent to 14 percent depending to the assumed degree of assignment response.

Total beneficiary liabilities for all types of Medicare services are between 1 and 5 percent greater under a simulated fee schedule payment system than under the CPR system. Reductions in liabilities for care received from general practitioners and family practitioners are not sufficient to offset increases associated with the services of other providers. This especially true for office and hospital visits (table 5.6)--types of services for which simulated increases in beneficiary liabilities are greatest.

Table 5.5

Percent Change in Beneficiary Liabilities for all Procedures: By Provider Specialty

- Statewide Mean Allowed Charge Fee Schedule and Alternative Assignment Responses -

(South Carolina Analysis File: 1983)

Assumed Elasticity	All*	General Practice	Family Practice	Internal Medicine	General Surgery	Orthopedic Surgery	Ophthal-Mology	Radio-logy
0.00	0.8	-11.5	-10.0	8.9	0.8	1.7	2.7	-0.2
0.50	2.8	-11.1	-9.9	11.5	4.2	3.1	3.2	1.8
1.00	4.6	-11.1	-10.0	13.9	7.3	4.4	3.6	3.7

*Includes physicians in listed specialties and others.

Table 5.6

Percent Change in Beneficiary Liabilities for All Procedures: by Type

- Statewide Mean Allowed Charge Fee Schedule and Alternative Assignment Responses -

(South Carolina Analysis File: 1983)

Assumed Elasticity	All*	Office Visits	Hospital Visits	Surgery	Radiology	Pathology
0.00	0.8	2.1	1.9	0.0	-0.4	0.5
0.50	2.8	3.3	4.4	2.0	1.4	1.0
1.00	4.6	4.4	6.8	4.0	3.2	2.3

*Includes listed procedure types and other medical procedures: excludes anesthesia.

Effects of an Average Charge Fee Schedule and Mandatory Assignment

Under traditional case by case assignment, physicians who do not accept assignment avoid the burden of any reduction in allowed charges induced by the fee schedule. Instead, they continue to collect their billed charges from their Medicare patients; it is those patients who bear the burden of any reductions in program payments. Suppose that CPR were replaced by a budget neutral, average charge fee schedule but with mandatory assignment. What would be the effect of that change in reimbursement policy on practice revenues?* Certainly, practice revenues would decline in the aggregate—assuming the volume and mix of services remains unchanged--since physicians would forgo collection of the balances between their billed fee and the allowed charge on otherwise unassigned services. The simulation's results (table 5.7) suggest such losses would amount to approximately 11 percent of South Carolina physicians' Medicare revenues.

An unanswered question is: will those losses in revenues be spread uniformly across all physicians? The simulation's results suggest that the answer is no. Replacing the CPR reimbursement system with the average charge fee schedule and mandatory assignment reduces internists' Medicare revenues by almost 22 percent. But the simulated revenue losses realized by general and family practitioners (9 and 4 percent) are less than a third of that value. Their losses from the balances of bills for otherwise nonassigned services are mitigated by increases in allowed payments for their office and hospital

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*Presuming physicians do not respond by altering the mix and volume of Part B services they provide, program payments under mandatory assignment will be identical to their levels under case by case assignment.

Table 5.7

Percent Change in Physicians´ Medicare Revenues - Statewide Mean Allowed Charge Fee Schedule - Mandatory Assignment (South Carolina Analysis File: 1983)

	All*	General Practice	Family Practice	Internal Medicine	General Surgery	Orthopedic Surgery	Ophthalmology	Radiology
office visits	-20.3	-9.1	-12.8	-31.6	-10.9	-22.7	—	—
hospital visits	-13.9	4.1	-5.4	-22.7	0.1	—	—	—
surgery	-7.6	—	—	2.3	-5.6	-11.7	-8.2	—
radiology	-1.3	—	—	—	—	—	—	-1.2
pathology	-22.6	-17.1	-20.3	-27.1	—	—	—	—
all types	-11.3	-4.0	-9.0	-21.6	-5.3	-12.6	-8.2	-1.4

*Includes physicians in listed specialties and others.

visits. Surgical specialists' losses are in the 5 to 13 percent range, while revenues of radiologists are essentially unchanged in the simulation.

In sum, the simulated implementation of a Medicare fee schedule and mandatory assignment would reduce physicians' Medicare practice revenues by 11 percent in the aggregate--presuming no changes in service volume. But the burden is not distributed equally across specialties: internists experience the greatest percentage reductions in practice revenues. This is especially noteworthy, since they provide a larger fraction of Medicare services than any other specialty group. Given the results of the simulation, they may be the most likely to resist implementation of an average charge fee schedule if it is coupled with mandatory assignment.

Implementing an Average Charge Fee Schedule with Adjusted Payments for Office Visits

In competitive markets, prices equilibrate consumers' valuation of commodities with the costs of supplying them. But it is arguable that prices do not serve that function in the markets for physicians' services. Factors like pervasive health insurance coverage for some services and the agency relationship between physicians and patients might distort those markets, breaking the link between prices and the true value of services. Proponents of that view can cite the work of Hsiao and Stason (1979) as evidence of the consequences of such distortions. Those authors present data which suggest that office visits are underemunerated relative to surgical procedures (or surgery overvalued relative to visits) by a factor of 2 to 1 based on the value of resources inputs.*

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*Hsiao and Stason did find some agreement between resource-cost-based and charge-based relative values for some surgical procedures, but not in all cases. But the most dramatic differences between the scales is their valuation of office visits in contrast to surgical procedures.

Consequently, a fee schedule paying historical average charges might undervalue visits (or overvalue other procedures).

But what if the fee schedule were adjusted so that relative payments for office visits were brought into conformance with their relative resource costs as estimated by Hsiao and Stason? The present study revalues mean allowed charges for Medicare services in South Carolina and simulates the effects of replacing the CPR system with a fee schedule based on those adjusted charges. Under it, allowed charges for office visits are approximately double their historic statewide means, while payments for all other services are reduced by a factor necessary to preserve budget neutrality.* As in the other simulations, service mix and volume are presumed to be unaffected by implementation of the fee schedule.

The study does not adjust relative fees for medical procedures (e.g., hospital visits) not explicitly evaluated by Hsiao and Stason. Absent the data necessary for estimating relative resource costs of those procedures, one can only conjecture as to differences between those costs and physicians' relative charges. Hence, the simulation is a partial rather than complete and definitive assessment of the fiscal effects of implementing a resource cost-adjusted average charge fee schedule.

Simulated changes in Medicare program payments (table 5.8) are as expected. Total program outlays under a budget-neutral fee schedule are unchanged from their totals under the CPR system, but payments for the services of primary care providers increase while outlays for the services of other specialists

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*The study multiplied office visit charges by 2.37, the factor necessary to establish the allowed charge for an initial office visit at 0.21 of the charge for an inguinal hernia repair: their relative resource costs as reported by Hsiao and Stason. To preserve budget neutrality, all charges were then multiplied by 0.82.

Table 5.8

Percent Change in Medicare Program Payments
- Mean Charge Fee Schedule: Payments for Office Visits Adjusted-
(South Carolina Analysis File: 1983)

	All*	General Practice	Family Practice	Internal Medicine	General Surgery	Orthopedic Surgery	Ophthal-Mology	Radiology
office visits	94.6	132.7	126.9	62.5	96.9	82.9	—	—
hospital visits	-17.9	-3.6	-8.5	-25.1	-12.5	—	—	—
surgery	-17.9	—	—	-11.0	-17.8	-18.6	-17.9	—
radiology	-17.9	—	—	—	—	—	—	-18.0
pathology	-17.9	-16.9	-19.4	-16.4	—	—	—	—
all types**	0.0	50.8	37.3	0.2	-9.5	-6.6	-17.5	-17.4

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*Includes physicians in listed specialties and others.

**Includes listed procedure types and other medical services: excludes anesthesia.

decline. Those percentage changes can be substantial: they range from an increase of over 50 percent in the case of general practitioners to reductions of over 17 percent in program outlays for ophthalmologists´ and radiologists´ services. Interestingly, there is almost no net change in program payments for internists´ services in the simulation. The nearly 63 percent increase in program outlays for office visits is matched almost exactly by smaller but pervasive reductions in program payments for the other procedures that internists perform.

Effects on Practice Revenues: Adjusted Charge Fee Schedule

From the physician´s perspective, the important outcome of replacing the CPR reimbursement system with an adjusted fee schedule is its effect on practice revenues--not on program payments per se. Changes in program payments will have the most acute effects on the revenues of physicians with relatively high assignment rates (e.g., general surgeons and radiologists) while the revenues of physicians with low assignment rates (e.g., internists) are the least likely to be affected. The percent changes in the practice revenues of primary care providers (table 5.9) are smaller than the corresponding large changes in program payments for their services owing to their relatively low rates of accepting assignment. Assuming physicians do not change their assignment rates in response to the fee schedule, the nearly 40 to 50 percent increases in program payments for general and family practitioners´ services yields only modest increases in their Medicare revenues: approximately 10 to 16 percent. Under the same assumption, internists´ revenues actually decline slightly (3 percent), even though total program payments for their services are essentially unchanged. And the decrease in allowed fees for non-visit procedures (necessary to balance the upward adjustment in payments for office visits) reduces the Medicare practice

Table 5.9

Percent Change in Physicians´ Medicare Revenues
For All Procedures: By Specialty
- Mean Charge Fee Schedule and Alternative Assignment Responses:
Payments for Office Visits Adjusted -
(South Carolina Analysis File: 1983)

Assumed Elasticity	All*	General Practice	Family Practice	Internal Medicine	General Surgery	Ortho-pedic Surgery	Ophthal-Mology	Radio-logy
0.00	-3.7	15.8	10.0	-3.0	-8.1	-5.1	-5.8	-16.7
0.50	-0.4	21.5	14.7	-0.6	-4.3	-2.3	-4.7	-13.0
1.00	2.4	24.8	17.7	1.6	-1.0	0.1	-3.6	-9.2

*Includes physicians in listed specialties and others.

Table 5.10

Percent Change in Physicians´ Medicare Revenues
For All Procedures: By Type
- Mean Charge Fee Schedule and Alternative Assignment Responses:
Payments For Office Visits Adjusted -
(South Carolina Analysis File: 1983)

Assumed Elasticity	All*	Office Visits	Hospital Visits	Surgery	Radiology	Pathology
0.00	-3.7	25.6	-8.1	-10.2	-17.0	-5.0
0.50	-0.4	32.2	-5.4	-7.7	-13.3	-3.3
1.00	2.4	35.7	-2.7	-5.3	-9.6	-1.5

*Includes listed procedure types and other medical procedures: excludes anesthesia.

revenues of general and orthopedic surgeons and ophthalmologists by 5 to 8 percent, and the revenue of radiologists by more than 10 percent.

In this simulation, fee schedule payments for office visits are approximately twice their average allowed charge under the CPR system. And they probably exceed the average billed fees of at least some physicians. Those practitioners could increase their Medicare revenues by increasing the rate at which they accept assignment on office visits. Relaxing the presumption of no assignment response to the fee schedule results in substantial increases in general practitioners´ and family practitioners´ revenues (table 5.9). In fact, the estimated increases in their revenues associated with the fee schedule and an assignment elasticity of 1.0 are approximately half again as large as the increases under the assumption of no assignment response. Furthermore, the estimated revenues of internists, general surgeons, and orthopedic surgeons under the fee schedule and the unit elasticity assumption are close-to their levels under the CPR system--differences are on the order of 1.6 percent or less. That is, permitting those specialists to adjust their assignment rates enabled them to essentially maintain historic revenue levels under the fee schedule.

In general, plausible adjustments in practice assignment rates enable physicians to mitigate much of the revenue reductions implicit in a budget neutral fee schedule which increases payments for office visits while lowering them for other procedures. In fact, data in table 5.10 show that simulated percentage reductions in practice revenues from surgery and radiology procedures under the unit elasticity assumption (-5.3 percent and -9.6 percent respectively) are roughly half the size of the reductions (-10.2 percent and -17.0 percent) under the zero elasticity assumption. And adjustments in assignment patterns enable physicians to realize almost as much revenue from hospital visits and pathology procedures under the fee schedules as under the traditional CPR system.

Effects on Beneficiary Liabilities: Adjusted Charge Fee Schedule

Assuming no assignment response to the fee schedule, doubling allowed fees for office visits doubles beneficiary liabilities when the physician accepts assignment but may reduce their liabilities for non-assigned services by narrowing the gap between allowed and billed charges.* Allowing assignment rates to vary in response to the fee schedule complicates the task of estimating beneficiary liabilities even further. Consequently the effects of the fee schedule on those liabilities cannot be deduced a priori, but must be estimated empirically.

Beneficiary liabilities under an adjusted charge fee schedule are much different than under the CPR system. Moreover, the direction of change--whether beneficiaries are financially better or worse off under the fee schedule--is largely a function of the assumed rate of physicians' assignment responses. The effects of implementing a fee schedule range from an aggregate reduction in beneficiary liabilities of nearly 13 percent to an increase of almost 8 percent (table 5.11). And there is wide variation in the percentage change in liabilities for services received from different specialists. Assuming unit elasticity of assignment rate with respect to allowed fees, the

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*In fact, the Medicare program's payment under the adjusted fee schedule might exceed the physician's billed fee for office visits in a non-trivial number of cases. The simulation does not make any adjustment to program payments in those instances: and any excess payment (allowed fee above the billed charge) is assumed to accrue to the beneficiary when the physician foregoes assignment.

Table 5.11

Percent Change in Beneficiary Liabilities For All Procedures: By Specialty
- Mean Charge Fee Schedule and Alternative Assignment Responses:
Payments for Office Visits Adjusted -
(South Carolina Analysis File: 1983)

Assumed Elasticity	All*	General Practice	Family Practice	Internal Medicine	General Surgery	Orthopedic Surgery	Ophthal-Mology	Radio-logy
0.00	-12.5	-51.7	-40.8	-9.8	-3.8	-1.4	26.5	13.8
0.50	-1.2	-34.9	-27.2	-2.4	11.3	7.9	30.6	3.9
1.00	8.3	-25.5	-18.7	4.5	24.7	16.0	34.8	21.6

*Includes physicians in listed specialties and others.

Table 5.12

Percent Change in Beneficiary Liabilities For All Procedures: By Type
- Mean Charge Fee Schedule and Alternative Assignment Responses:
Payments for Office Visits Adjusted -
(South Carolina Analysis File: 1983)

Assumed Elasticity	All*	Office Visits	Hospital Visits	Surgery	Radiology	Pathology
0.00	-12.5	-95.4	13.8	11.9	-13.5	15.9
0.50	-1.2	-77.5	22.3	21.3	3.4	20.6
1.00	8.3	-67.6	30.9	30.6	21.4	25.2

*Includes listed procedure types and other medical procedures: excludes anesthesia.

worst-case scenario from the beneficiaries' standpoint, liabilities range from reductions of 19 percent to 26 percent (for services provided by family practitioners and general practitioners) to increases of over 20 percent (associated with services of general surgeons, ophthalmologists, and radiologists). Essentially the same story is told by the data on beneficiary liabilities for different types of care (table 5.12). Again assuming an assignment elasticity of 1.0, simulated beneficiary liabilities for office visits under the adjusted fee schedule are almost 68 percent less than under CPR reimbursement, while their liabilities for some of the other important categories of service are 21 to 31 percent greater under the fee schedule.

Summary and Discussion

Policy makers are presently considering options for reforming the way Medicare reimburses physicians for their services. Among those options is replacing the present CPR reimbursement system with a fee schedule based on historic allowed charges averaged over a region. A charge-based fee schedule has a number of advantageous properties. First, it is simple to develop, and future changes in its payments are easily controlled by the Medicare program. Second, it is easy to design the fee schedule to be budget neutral, or nearly so, with respect to a given mix and volume of services. Consequently, total Medicare program payments for those services should be nearly identical under the fee schedule and the CPR system. Third, practice revenues under an average-charge fee schedule are not likely to be much different than under Medicare's traditional reimbursement system. Therefore, it is possible that many physicians will not fault the fee schedule on purely economic grounds—at least in the short run. Finally, it is conceptually easy to modify a fee schedule to address particular policy issues. For example, fee schedule payments for selected services can be revalued to bring them into conformance with estimates of their relative costs in resource inputs. Furthermore, policy makers can (in principle) adjust the fee schedule to induce desired increases or decreases in the supplies of any Medicare services.

Simulated replacement of the CPR system with different charge-based fee schedules in South Carolina provides empirical evidence on these points. In two simulations, a budget neutral fee schedule paying statewide mean allowed charges replaces the CPR reimbursement system. In one, physicians' traditional case by case assignment option is preserved; in the second, assignment is mandatory. A third simulation contrasts baseline Medicare program payments and physicians' practice revenues with corresponding values under an average charge fee schedule in which payments for office visits are adjusted upward to conform to estimates of the relative cost of their resource inputs.

By design, total aggregate Medicare program payments are constant across the simulations: but there are changes in payments for services provided by different specialties. As expected, the greatest effect of implementing the fee schedule paying mean charges is to increase program payments and practice revenues for general and family practitioners' services while simultaneously reducing them for internists' services. Payments and revenues associated with other specialties are largely unaffected. Distributions of physicians with respect to fee schedule-induced changes in practice revenues were massed around zero percent change--and skewed in the direction of positive change (gains in revenues). Those results are consistent with previous findings on the relative tightness of distributions of allowed charges around their statewide means for many non-visit procedures. Replacing the CPR with a statewide average charge fee schedule that does not recognize specialty distinctions has the greatest effects on payments and revenues for the services of primary care providers—whose Medicare practices are largely comprised of visits.

Simulated implementation of that fee schedule and mandatory assignment reduces Medicare practice revenues of all physicians in the state by 11 percent. Medicare revenues of internists are reduced the most: being nearly 22 percent less than revenues for the same services under the CPR system. These potential reductions in Medicare revenues need not bring forth strong provider resistence to a fee schedule and mandatory assignment if physicians interpret those reductions relative to total practice revenues. Survey data suggest that Medicare accounts for less than 20 percent of the gross practice revenues of all physicians, and less than 30 percent of internists´ practice revenues.* Consequently, the simulated 11 percent reduction in all physicians´ Medicare revenues might account to less than 2 percent of physicians´ total practice revenues. Even the 22 percent reduction in the Medicare revenues of internists might represent less than 7 percent of an average internists´ gross practice income. Physicians might still offer strong resistence to mandatory assignment for political or professional reasons. But the economic rationale for resistence may not be as strong.

Simulations also showed that radical revaluing of fee schedule payments for office visits--and concomitant reductions in payments for other services to preserve budget neutrality--does not have a particularly large effect on the Medicare practice revenues of most physicians. This is even more true whenever physicians´ likely assignment rate responses to the fee schedule are taken into account. A doubling of fee schedule payments for office visits (and an offsetting reduction in payments for other services) leaves the total Medicare program revenues of most physicians within 10 percent of their value under the CPR system. The exceptions are providers whose practices are extremely dependent upon office visits (general and family practitioners) and, at the other extreme, providers with very few office visits (radiologists). Physicians´ responses to the proposed implementation of that fee schedule may be proportional to its likely impact on their total practice revenues. Assuming the nationwide estimate of the distributions of practice revenues by payer holds in South Carolinia, a simulated 4 percent reduction in aggregate Medicare revenues for all physicians would represent less than 1 percent of their gross practice revenues from all sources. And a 17 percent reduction in radiologists´ Medicare revenues would represent only 5 percent of their total practice revenues.

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*Owens (1985) reported survey results suggesting that in 1981, Medicare revenues were 17 percent of gross practice revenues for all physicians, 29 percent of internists´, and 18 percent of general practitioners.

The study provides evidence on the effects of a fee schedule on beneficiary liabilities for covered services. Under plausible assumptions regarding the responsiveness of assignment rates to changes in allowed fees, aggregated beneficiary liabilities under the different fee schedules are within a few percentage points of their levels under the CPR reimbursement system. Estimated increases in those liabilities--aggregated over all types of services--are always less than 5 percent. And in some simulations, those aggregated liabilities actually decline by a few percentage points. Once caveat must be made, however. A fee schedule´s effects on beneficiary liabilities is strongly dependent on the type of services in question and on the propensity of physicians to mitigate revenue losses by reducing assignment rates thereby possibly increasing the financial burden on beneficiaries. Replacing the CPR system with a fee schedule did not appreciably affect beneficiaries' liabilities in the aggregate--but there was rather wide variation in those effects across different types of procedures.

No study can answer every question regarding the feasibility and desirability of replacing the traditional CPR reimbursement system with a fee schedule. The present one is no exception, for it leaves unanswered such important questions as: by what mechanism should a fee schedule be updated and maintained? How should payments be established for infrequently performed or new procedures. And to what extent should regional variation in medical protocols or norms be accounted for in establishing relative payment levels? Despite such shortcomings the study provides much that is useful. Its findings demonstrate the feasibility of constructing a Medicare Part B fee schedule that is acceptable to the program and to physicians: at least on economic grounds in the short run. And it also demonstrates that a charge-based fee schedule is consistent with various policy objectives including budget neutrality, equity in payments across procedure groups, and preservation of case by case assignment.

APPENDIX

Fee Schedules in California and Washington

Two other studies of physician payment under the Medicare Part B program estimate some the fiscal effects of implementing statewide average charge fee schedules. This appendix contains selected results from them: results which are comparable to those reported in this chapter. The first study is the Congressional Budget Office's (CBO's) ongoing analysis of options for reimbursing physicians under Medicare. CBO staff provided data on the estimated effects of implementing a fee schedule paying statewide average allowed charges in Washington state in 1983.* The analysis covers all physicians in the state who submitted Medicare claims except for members of traditionally hospital-based specialties--radiologists, anesthesiologists, and pathologists. And it covers all physician services except injections and laboratory procedures. The second is an Urban Institute analysis of the effects of a Medicare fee schedule paying statewide mean customary fees in California based on 1980 customary charges and other data on physicians in five specialties.**

One of the important findings of the present study is that simulated implementation of a Medicare fee schedule in South Carolina increases program payments and practice revenues for general and family practitioners services but reduces them for internists' services. Payments and revenues for care provided by most other specialties are largely unaffected. Results from The Urban Institute´s analysis of California data (table A) and CBO´s analysis of data for Washington state (table B) are evidence as to the generality of that finding. The greatest simulated changes in program payments are for the services of primary care physicians in both states. Furthermore, implementation of an average charge fee schedule increases program payments to general practitioners and family practitioners but reduces them to internists. And in California and Washington state, implementing a fee schedule has the greatest positive effect on the Medicare practice revenues of general practitioners and family practitioners--and produces small reductions in internists´ revenues.

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*Sandra Christensen, The Congressional Budget Office, private communication.

**Moon, Marilyn, "Establishing Absolute Fee Levels: Distributional and Incentive Effects" in Medicare Physician Payment Reform: Issues and Options, John Holahan and Lynn Etheredge eds., The Urban Institute, 1985.

The most apparent difference between the present study and the other two is the order of magnitude of the estimated effects. The percentage gains (or reductions) associated with primary care providers in South Carolina are several percentage points greater than those in the other two studies. A possible explanation is that the intrastate variation in allowed charges for office and hospital visits--the mainstays of primary care practices--is somewhat greater in South Carolina than in California and Washington. Consequently, the average difference between individual physicians´ historical allowed charges and statewide mean fees (the fee schedule payment) might be greater in South Carolina than in the other two states. That notwithstanding, the patterns of effects are essentially the same across the three studies.

The present study developed distributions of physicians in terms of their simulated gains (or reductions) in Medicare revenues under a fee schedule, and reported them to be relatively tightly massed around zero. Data from the Urban Institute study of California physicians (table C2) exhibit the same general pattern. In California as in South Carolina, few physicians experience

Table A

1. Percentage Changes in Average Medicare Reimbursements Resulting from Implementation of a Simple Fee Schedule Based on Average Customary Charges (Urban Institute: California 1980)

		Specialty				
Selected Procedures	All Physicians	General Practice	General Surgery	Internal Medicine	Orthopedic Surgery	Ophthamology
Office Visits	0	+7.6	+5.9	-6.3	-3.8	+8.2
Hospital Visits	0	+6.7	+8.1	-2.8	-0.5	b
Surgery	0	+16.7	-2.1	+13.0	-1.6	-0.9
Pathology	0	+1.9	b	+0.8	b	b
Radiology	0	+1.1	b	-1.1	+0.3	b
All Procedures	0	+7.0	+1.2	-3.4	-1.6	+2.5

2. Percentage Changes in Average Physician Medicare Revenue Resulting from Implementation of a Simple Fee Schedule Based on Average Customary Charges (Urban Institute: California 1980)

		Specialty				
Selected Procedures	All Physicians[a]	General Practice	General Surgery	Internal Medicine	Orthopedic Surgery	Ophthamology
Office Visits	+0.4	+3.0	+2.1	-1.5	-0.7	+2.4
Hospital Visits	+0.1	+3.2	+4.7	-1.3	-0.1	b
Surgery	+0.3	+6.1	-0.6	+4.0	-0.3	+0.4
Pathology	-0.5	+0.2	b	-0.8	b	b
Radiology	0	+0.7	b	-0.4	-0.1	b
All Procedures	0	+3.0	+0.7	-1.2	-0.3	+0.8

[a] These figure do not necessarily come out to zero since the average used for the simple fee schedule is based on all customary charges. Those physicians who do not accept assignment can have higher or lower average charges resulting in net losses or gains. See the text for further explanation

[b] Data not available.

Table B

1. Percent Change in Medicare Payments
- Statewide Mean Allowed Charge Fee Schedule -
(Congressional Budget Office: Washington State 1983)

	All	General Practice	Family Practice	Internal Medicine	General Surgery	Ortho-pedic Surgery	Ophtha-mology	Other
visits	0.0	6.3	6.3	-5.7	3.2	3.1	-0.8	0.4
consultations	0.0	16.1	6.3	-5.4	7.9	14.1	14.8	0.0
procedures	0.0	8.1	6.9	0.5	-0.7	0.0	-2.2	-0.1
all types	0.0	6.8	6.4	-3.8	-0.3	0.5	-2.0	0.0

2. Percent Change in Medicare Revenue
- Statewide Mean Allowed Charge Fee Schedule -
(Congressional Budget Office: Washington State 1983)

	All	General Practice	Family Practice	Internal Medicine	General Surgery	Ortho-pedic Surgery	Ophtha-mology	Other
visits	0.4	1.6	2.2	-1.0	1.5	2.3	0.3	0.6
consultations	0.4	4.4	2.7	-0.8	2.3	4.3	4.5	0.2
procedures	0.0	1.3	1.9	0.0	-0.1	0.0	-0.1	-0.1
all types	0.2	1.5	2.1	-0.7	0.1	0.3	-0.0	0.1

gains or losses exceeding 25 percent of their baseline Medicare revenues. And in both studies, the fraction of physicians who are (relatively) large gainers usually exceeds the fraction experiencing equally large reductions in revenues. A difference between those two sets of data is that the distributions of South Carolina physicians are skewed more in the positive direction than are those based on California data.

Finally, the appendix includes distributions of physicians in terms of their gains (or reductions) in allowed charges in California and Washington state—tables C1 and C2 respectively. These are provided for information only, as the present study did not report analogous distributions for South Carolina.

Table C

1. Distribution of Physicians by Percentage Change in Medicare Reimbursements Resulting from Implementation of a Fee Schedule Based on Average Customary Charges (Urban Institute: California 1980)

	More than 10% Loss	-5% to -10%	-1% to -5%	0	1% to 5%	5% to 10%	More than 10% Gain
All Physicians	13.3	16.8	19.3	3.9	17.2	10.9	18.6
General Practice	2.2	8.4	15.7	3.9	19.8	17.3	32.6
General Surgery	13.7	9.1	18.3	5.3	14.6	14.1	24.9
Internal Medicine	19.9	23.0	21.0	3.5	16.1	6.6	10.0
Orthopedic Surgery	19.3	15.5	25.5	4.0	14.0	12.3	9.3
Ophthalmology	5.5	15.8	19.6	6.8	17.8	11.5	23.0

2. Distribution of Physicians by Percentage Change in Medicare Practice Revenue Resulting from Implementation of a Fee Schedule Based on Average Customary Charges (Urban Institute: California 1980)

	More than 10% Loss	-5% to -10%	-1% to -5%	0	1% to 5%	5% to 10%	More than 10% Gain
All Physicians	3.2	4.9	22.5	21.8	28.5	9.1	10.0
General Practice	1.2	2.5	13.9	20.2	33.7	12.1	16.6
General Surgery	3.7	4.5	21.6	22.9	27.5	10.2	9.6
Internal Medicine	5.9	7.1	33.9	22.5	22.0	5.1	3.6
Orthopedic Surgery	2.8	9.8	23.9	20.8	28.6	7.1	7.1
Ophthalmology	0.8	3.8	18.5	24.4	32.4	10.9	9.2

Table D

Distribution of Physicians by Percent Change in Allowed Amounts
- Statewide Mean Allowed Charge Fee Schedule -
(Congressional Budget Office: Washington State 1983)

	Less than -25%	-10% to -25%	5% to 10%	-0.5% to -5%	0.5% to -0.5%	0.5% to 5%	5% to 10%	10% to 25%	Greater than 25%
all specialties	0.8	10.0	14.8	18.7	3.9	16.9	12.5	13.5	8.9
general practice	0.2	2.7	7.8	13.0	3.0	24.0	21.1	19.6	8.5
family practice	0.3	4.0	11.6	12.1	4.8	21.9	16.6	21.9	6.8
internal medicine	1.2	16.3	24.1	20.0	4.2	9.7	7.2	9.0	8.3
general surgery	0.3	6.3	15.2	29.3	6.3	16.9	10.9	9.6	5.3
orthopedic surgery	0.4	3.7	13.6	36.8	5.5	17.7	8.8	10.7	2.9
ophthalmology	2.5	11.0	22.8	14.8	4.2	20.7	10.6	8.9	4.6

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